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To the Graduate Council:

I am submitting herewith a thesis written by Jean K. Merritt entitled "An Evaluation of Methods for Teaching Study Skills for Social Studies in the Fourth Grade." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Elementary Education.

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AN EVALUATION OF METHODS FOR TEACHING STUDY SKILLS
FOR SOCIAL STUDIES IN THE FOURTH GRADE

A THESIS

Submitted to
The Graduate Council
of
The University of Tennessee
in
Partial Fulfillment of the Requirements
for the degree of
Master of Science

by

Jean K. Merritt

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CHAPTER I

INTRODUCTION

Purpose

The purpose of this study is to develop and evaluate a variety of methods for teaching study skills in the social studies with a fourth grade group.

Definitions

For the purposes of this study the writer accepts the following definition of social studies.

Social studies are that portion of the social sciences, selected for instructional purposes and composed of History, Geography, Sociology, Political Science, Philosophy, Anthropology, Psychology, and which develop those knowledges, skills, attitudes, and habits, pertaining to man's relation to man and to his physical environment.¹

For the purpose of this study the following definition of study will be used. "Study is a big term including many different varieties of activities, and varying degrees of difficulty and responsibility,"² defining the problem, collecting, organizing and evaluating data, and testing conclusions through use, with the necessary attitudes,

¹A definition developed by the summer class of 1951 of Education 327 Teaching the Social Studies in the Elementary School.

²Strayer, George D., and Norisworthy, Naomi, How to Teach (New York: Macmillan Company, 1918), p. 222.

independence, being unprejudiced, and suspension of judgment. It is in its highest sense the reflective process of assimilating knowledge, and reorganizing experience into a creative whole for the satisfaction of a felt need.

For the purposes of this study the following definition of study skills for the social studies will be used. Social studies study skills are those skills, both external and internal, whose mastery is necessary, for the full realization of the goals belonging to the social studies, "1. acquiring functional information, 2. analyzing social problems, and 3. practicing desirable social relations."³ The external skills are the use of dictionary, index, table of contents, atlas, almanac, encyclopedia, reference books, charts, graphs, maps, pictures, and social expression through oral and written reports, group planning, group discussion, dramatization, and presentation in musical, graphic, and three dimensional forms.

The internal skills are critical thinking and certain attitudes or frame of mind. While attitudes are not generally recognized as skills, one must master certain attitudes to do effective study. These attitudes are willingness to suspend judgment, regarding subject matter as a means to an end, regarding all authors as subject to bias and error, willingness or ability to work independently, willingness or ability to sustain interest, ability to make vigorous and sustained

³Anderson, Howard R., Forsyth, Elaine, and Morse, H. T., The Measurement of Understanding (Chicago: University of Chicago Press, 1946), p. 71.

application of mind to the assimilation of ideas, and recognizing the dignity and worth of the individual. Critical thinking involves ability to understand spoken and printed information and all its varied aspects, defining problems, hypothecation, collecting, interpreting and evaluating data, organizing data, drawing conclusions, and verifying conclusions.

The hypotheses in this study will give more detailed aspects of study skills for the social studies.

Importance of This Study

The development and evaluation of a variety of methods for teaching study skills in the social studies in the fourth grade is important for the following reasons:

1. Social studies hold a central position in the elementary school curriculum because their aims coincide with the aims of general education. John Michaelis states, "The social studies make a rich contribution to the growth and development of children because the central function of the social studies is identical with the central purposes of education--the development of democratic citizenship."⁴

Again, he says

The social studies have a unique contribution to make to the development of democratic behavior. The meaning of democratic values and processes can be clarified through

⁴Michaelis, John U., Social Studies for Children in a Democracy (New York: Prentice Hall, 1950), p. 2.

actual use and through study. Since the social studies are concerned primarily with human relationships and with man as he interacts with his environment, they are of primary importance in developing insights, understandings, and concepts related to democratic ideals.⁵

Compare the above stated contributions and see that they coincide with the aims of education as set forth in the 1951 booklet by the Tennessee Curriculum Planning Committee:

- a. mastery of fundamental skills
- b. ability to work in groups
- c. form desirable mental attitudes
- d. learn to cope with unforeseen problems that may arise
- e. understand the relationships of activities to persistent life problems.⁶

2. Study skills are necessary for the mastery of social studies because:

(a) Functional information cannot be acquired without some use of the external skills.

As an illustration, a child is studying life in foreign lands, in order to understand the inter-dependence of people. He wishes to report to his class on how people in China provide themselves with clothing. He goes to the library to find material on the subject. He must know what reference material to go to. He must use an index to locate the material in each book and in so doing he must understand alphabetical arrangement. At the same time he may possibly be called upon to use a dictionary to understand certain terms used and possibly to pronounce them. He must understand printed material and be able to select pertinent facts in order to make an adequate report.

⁵Ibid., p. 30.

⁶Tennessee Curriculum Planning Committee Report (Unpublished Report, Nashville, Tennessee, 1951), p. 7.

(b) Social problems cannot be analyzed without critical thinking and the attitudes necessary for good study.

(c) Practicing desirable social relations is the visible outcome of critical thinking with a background of functional information and the proper attitudes. To illustrate, suppose children are setting up class organization for opening exercises. They are concerned with what kind of activities are appropriate for the period, in what order they shall occur and who shall preside. They must evaluate a variety of activities and organize in order of importance and the amount of time each will require. They must select a person who is dependable and tactful despite the fact that they may be tempted to elect their best friend who may possess few of these qualities.

3. These study skills will aid in the mastery of other subjects because they contribute to the goals that the other subjects have in common:

- (a) mastery of the fundamental skills
- (b) ability to work in groups
- (c) formation of desirable mental attitudes
- (d) learning to cope with unforeseen problems that may arise
- (e) understanding the relationship of activities to persistent life problems.

As an illustration of the mastery of fundamental skills, it will be seen later in this study (see page 104) how social studies study skills may also be used in science units and other subjects. Some of

these skills are defining the problem, hypothecation, collecting, evaluating and organizing data, arriving at conclusions and verification.

Methods the teacher used to promote the ability to work in groups and the formation of desirable mental attitudes will be illustrated in Chapter II, pages 49-53.

Throughout the year every effort was made through class discussions to help children to understand the interdependence of all people and the place each person and occupation holds in relation to other people and occupations. In this way understanding the relationship of activities to persistent life problems was increased.

4. These study skills will have transfer value in helping the child meet persistent problems of living because critical thinking which involves problem solving techniques and which is one of the study skills, does just that. Frederick Marcham states, "Procedures of critical thinking are not peculiar to the social studies."⁷

The tendency to cut across subject matter lines and work in large fields of activity and large blocks of time makes naturally for some transfer value. Suppose a study of China is under way. An inquiry into occupation of many of the people will lead into a study of conservation which is also in the science curriculum. Here the problem approach will function.

⁷Marcham, Frederick G., Teaching Critical Thinking in the Social Studies (Washington, D. C.: National Council for Social Studies, 1942), p. 44.

Contradictory to this statement concerned with transfer value, H. T. Morse and G. H. McCune say ". . . critical ability and reflective thinking tend to develop along with knowledge and understandings in separate fields rather than as universal or generally transferable value."⁸

"Tests administered by University of Minnesota show low correlation in the ability to 'think clearly' in one field and 'thinking clearly' in another."⁹

The writers' statement should be amended to say that there will be transfer value where conscious effort is directed toward transfer value through teaching with similar procedure in other fields.

The writers of the Manual for Iowa-Every-Pupil Test of Basic Skills state,

Eventually then, the pupil's final status with reference to these skills (those for which the test was constructed) will depend, not so much upon the amount of isolated drill he has received on them, but upon the effectiveness with which instruction in all subjects has been integrated or correlated to the end of providing adequate opportunity for the correct application of these skills in a natural setting.¹⁰

Edna McGuire states that there are skills that have their origin in other subjects such as:

⁸Morse, H. T., and G. H. McCune, Selected Items for Testing Study Skills (Washington, D. C.: N. E. A., 1940), p. 16.

⁹Ibid., p. 17.

¹⁰Spitzer, H. F., and Horn, Earnest, and Staff, Examiner's Manual for Test B, Iowa-Every-Pupil Test of Basic Skills (New York: Houghton Mifflin Company, 1945), p. 15.

- a. oral and written composition
- b. dramatization and aspects of reading
- c. fine and industrial arts.¹¹

These may begin in the language arts.

5. Teaching some of the skills apparently should begin in the lower grades.

Wallace J. Howell concluded, after a study of this kind in George M. Doven School, Elmira, N. Y., that "intensive work in teaching proper work study skills should begin at least in Grade IV, since the greatest improvement appears in the intermediate grades."¹² His study only includes grades four, five and eight and is limited to the external skills. He found greatest progress was made in grades five and six. Judging from the amount of written material dealing directly with study skills one would conclude that little attention is given to them before the level of the sixth grade in most instances.

George D. Strayer places study skills in the lower elementary school because

Power to study is a very gradual growth. It must proceed slowly from the simple to complex. Knowing how to study is not an inborn gift--it does not come as a matter of intuition, nor does it come in some mysterious way when the child is of high school age. . . . Nor can we expect the upper grammar grade of high school teacher to do this.¹³

¹¹McGuire, Edna, "Social Studies Skills in the Elementary School," Social Education XVI (New York: American Book Company, December 1936),

¹²Howell, Wallace J., "Work Study Skills of Children in Grades IV-VIII," Elementary School Journal, Vol. L (Chicago: University of Chicago Press, March 1950), p. 389.

¹³Strayer, George D., and Norsworthy, Naomi, How to Teach (New York: Macmillan Company, 1918), p. 222.

Bessie W. Stillman in 1928 stated in the introduction of her book on training children to study. "We have not reached the point where examination on method of study is advocated as the main test of the learner's progress; but the time is certainly coming."¹⁴

As far back as 1909 Linda B. Earhart stated,

Carefully conducted experiments have shown that pupils in the elementary school are capable of using all of the factors of logical study. Observations have shown that they are given little opportunity to use them. The teacher is the most active element in the school room and she usually controls much or all of the work. She herself knows very little about thoughtful study, and consequently she cannot give much intelligent training in its use.¹⁵

P. J. Zimmers, in his book on teaching children how to study, states,

The aim of many class periods, especially in the lower grades, must be to teach pupils to master lessons in the teacher's presence, not primarily for knowledge but to learn to study properly. . . . Training in the right habits of study is a pupil's greatest need and should, therefore, be the principal aim of many class periods.¹⁶

6. Julius Boraas states that effective thinking develops through actual practice. He says,

The teacher will give best assistance by stimulating the pupil to make new attempts when he has become discouraged, and by calling attention to the successful thoughts that

¹⁴Stillman, Bessie W., Training Children to Study (New York: D. C. Heath and Company, 1928), p. xviii.

¹⁵Earhart, Linda B., Teaching Children to Study (New York: Houghton Mifflin, 1909), p. 78.

¹⁶Zimmers, P. J., Teaching Boys and Girls How to Study (Madison, Wisconsin: Parker Company, 1922), p. 24.

have been overlooked or to the defects which should be eliminated, providing the pupil verifies the advice by his own practice.¹⁷

Frederick Marcham, speaking of critical thinking, which is a combination of skills says,

. . . as a rule the best way to achieve an objective is to provide instruction to that end. This rule applies to critical thinking. It has a claim to be regarded as one of the main objectives in the teaching of the social sciences both in schools and in colleges and should accordingly be given prominent place in the program. . . . We learn to define a problem or draw a conclusion by being specifically taught to do so. As we have already said, the great error is to assume that objectives will be attained without specific instruction.¹⁸

7. Scarcity of written material dealing directly with study skills for the social studies for this grade level, indicates that there is a need for research in this area. There are standard tests to be administered, that serve as a guide as to what should be taught. However, these tests do not cover all skills. The writer found only two research studies conducted in grades anywhere near this grade level. Neither were concerned with all the skills. On upper grade levels there are a few concerned with single skills such as map reading and graph reading. There have been a number of studies done on critical thinking, which is a combination of many skills and attitudes, but these too, are on higher grade levels. The best material found was in social studies methods books. However, the fourth grade seems to be a neglected grade, in that it is seldom specifically mentioned or used as

¹⁷Boraas, Julius, Teaching to Think (New York: Macmillan Company, 1922), p. 34.

¹⁸Marcham, Frederick, Teaching Critical Thinking in the Social Studies (Washington, D. C.: National Council for Social Studies, 1942), p. 41.

an illustration. Most often to appear by name are first, second, fifth, and sixth grades. Therefore, any positive findings from this study will contribute to educational aims.

Setting of This Study

A number of teaching methods were developed and evaluated by means that will be set forth in another part of this study. A fourth grade group was used at McCampbell School in north Knoxville, Tennessee, from September 1952 through May 1953. The thirty-one children with whom this experiment was conducted varied from other fourth grade groups whom the writer has taught in the last five years, in that a large majority of the children were in approximately the same social level and enjoyed a good home background. Virtually all the parents exhibited interest in their children in providing books in the home, travel, wholesome recreation, and close cooperation with the school. The mental ability, social adjustment, chronological ages, and economic background of the children were not greatly different from other groups.

The economic background of this group was stable; seven of the parents were professional people; the others, non-professional but regularly employed. There was one indigent child in the class but he moved away in the late fall. The child who took his place was similar to the other children in all respects.

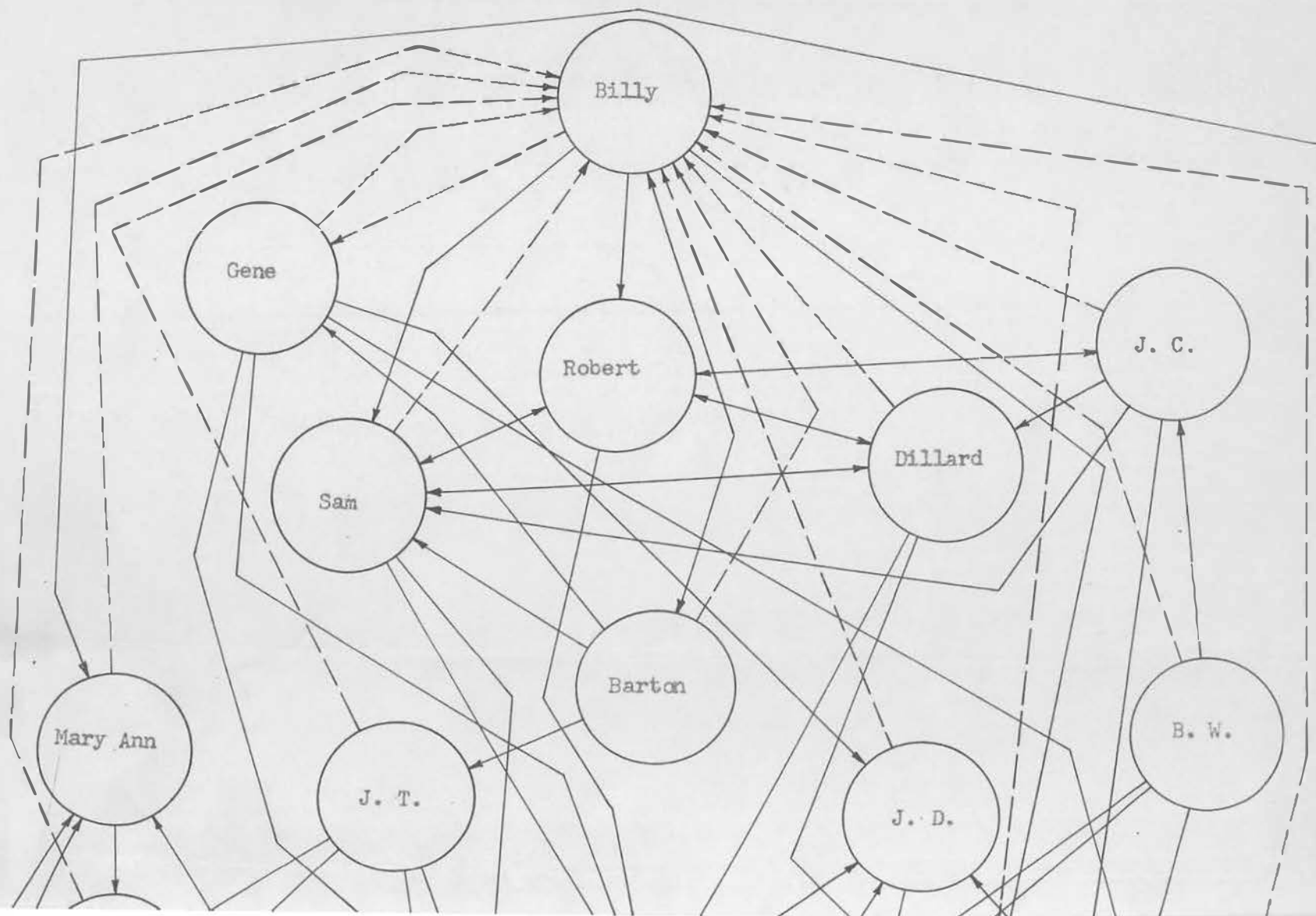
In order to know how each child was related to the group and the social implications for group work and to know if the social situation

was normal, a sociometric test was administered to the group in early October. The two questions asked were: (1) Who are the three people in this room you would rather sit by? (2) Is there any one person you would positively not want to sit by? The test revealed that there was one isolate in the class. Three children were singled out for the negative response, but they, in turn, were chosen by each other or by other children. A large majority of the class were on friendly terms with each other. (See Figure 1 and Table I for an analysis of the test.) All children's names used in any way in this study are fictitious.

Mary Frances Andrews did a study in sociometry entitled A Sociometry Study of Some of the Social Conditions in Urban Fourth Grade Groups. She has defined an isolate as one who receives one-half of the choices he makes and a star as one who receives one and one-half as many choices as he makes.¹⁹ The writer has used isolate to imply one who received no choices. Comparing the findings of Mary Frances Andrews with the situation of the children in this school room, there are twelve stars and eleven isolates as against the average found by Mary Frances Andrews of seven each in approximately the same size groups. In this room there was one who had no choice returned as against an average of three that Mary Frances Andrews found. The sociogram shown in Figure 1 reveals a very large "in group" and a very large "out group." This group is atypical to the extent that it differs from the findings of Mary Frances Andrews.

¹⁹Andrews, Mary Frances, "A Sociometry Study of Some of the Social Conditions in Urban Fourth Grade Groups" (Unpublished M. S. thesis, The University of Tennessee, 1949), p. 71.

FIGURE 1
A SOCIOMETRY FIGURE



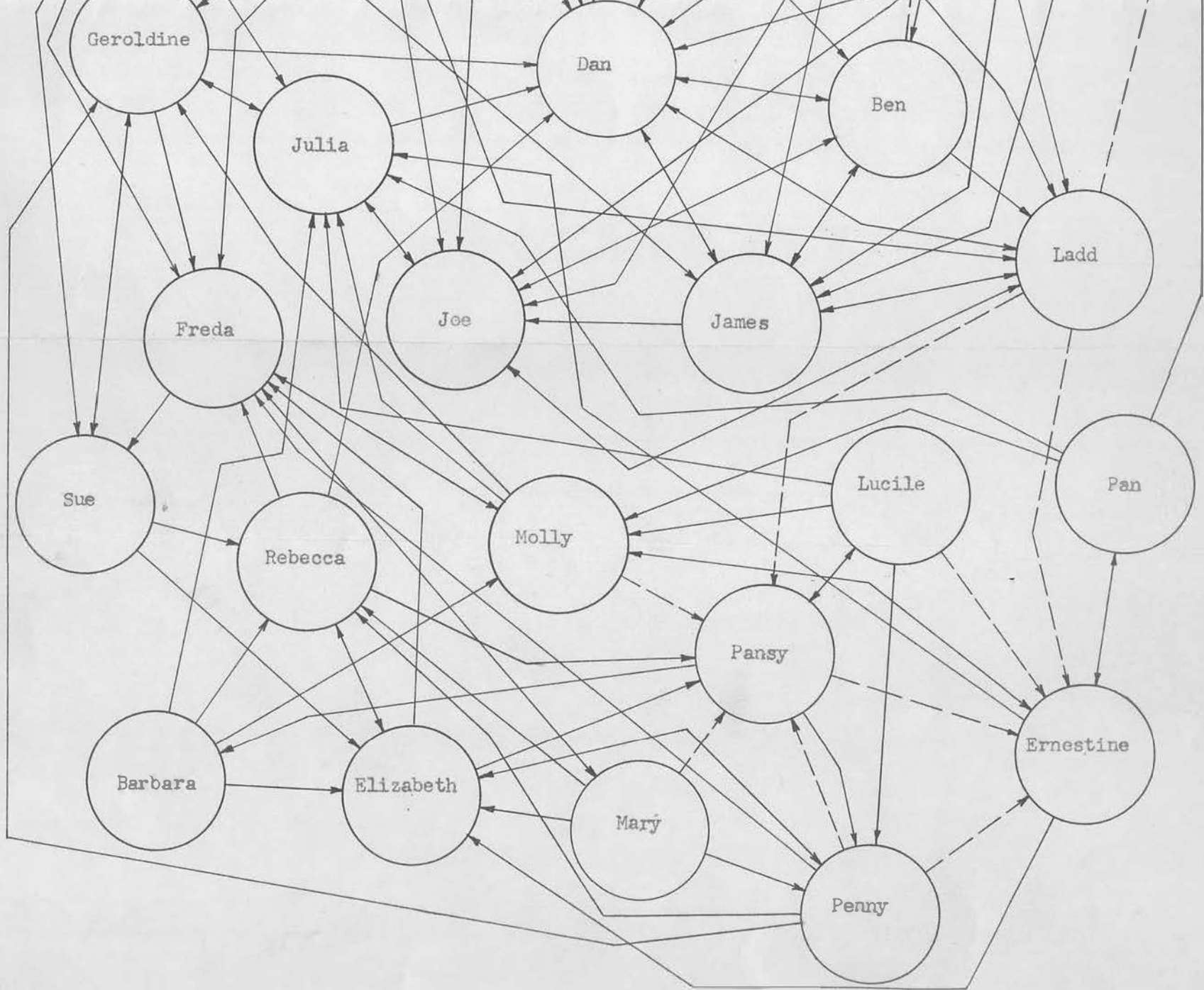


TABLE I

CHOICES RECEIVED IN SOCIOMETRIC TEST
ADMINISTERED IN FALL 1952

Name (fictitious)	Votes Received	Negative Response
Dan	11	
Joe	8	
Julia	8	
Freda	8	
Ladd	7	
James	7	
Elizabeth	6	
Geroldine	6	
Ben	5	
Rebecca	5	
Holly	5	
Mary Ann	4	
J. D.	4	
Penry	4	
Robert	4	
Sam	5	
Dillard	3	
Pansy	3	
Sue	3	
Ernestine	2	4
Mary	1	
Lucile	1	
Barbara	1	
Barton	1	
J. T.	1	
J. C.	1	
Gene	1	1
Billy	1	12
Pan	1	4
B. W.	0	

According to the norms given with My Weekly Reader test,²⁰ administered in September, the class in reading skills, was just where it should have been, 4.0. This was of course the average; some children rated higher, some lower.

The chronological ages of the children, as of September, ranged from seven years, six months (one child this age) to ten years, three months (one child this age). The other children were well within eight and nine years old. The mean was nine years, two months, which is normal. (See Table II.)

The mental ability of the children ranged from I.Q. 77 to 139. The mean I.Q. was 100. (See Table II for details.)

Seven of the children had been in the writer's third grade the preceding year. These children had been in a split group of third and fourth grade children. These seven children readily guided the incoming class into the established procedures of classroom activity, such as pupil planning and pupil conducted daily opening exercises, pupil initiated housekeeping duties, and methods of group and individual reports.

Limitations of the Study

The teacher was absent from the class nine weeks in the middle of the winter and required to sit or move about on crutches six weeks

²⁰Gray, William S., and Others, My Weekly Reader Test Form 4M (Columbus, Ohio: American Ed. Press, 1952), p. 4.

TABLE II

AGES AND MENTAL ABILITY OF CHILDREN AS
MEASURED BY OTIS SELF-ADMINISTERING TEST OF MENTAL ABILITY

Name (fictitious)	Years	Months	I.Q.
Freda	7	6	139
Julia	8	10	128
Geroldine	9	8	124
Joe	9	7	122
Ladd	9	5	116
J. D.	9	2	110
Dan	8	8	110
Barbara	9	0	109
Lucile	9	0	106
Mary Ann	9	6	106
Reece	9	2	105
Gene	8	10	104
Molly	9	7	103
Ben	9	0	102
James	8	10	100
Barton	8	10	99
Rebecca	9	7	99
Pangy	9	1	99
Ernestine	9	3	98
Mary	8	9	97
Sam	9	0	96
Penny	9	3	96
Dillard	9	0	95
J. T.	9	9	94
J. C.	9	1	94
B. W.	10	0	92
Elizabeth	9	5	91
Pan	9	8	89
Robert	10	3	84
Sue	9	7	81
Billy	9	5	77

more, due to a knee injury and resulting operation. This lost time, no doubt, affected the amount of progress the children made. Both the methods of the substitute teacher and the values placed on certain aspects of learning were greatly different from those of the writer. These nine weeks from November 10 to December 2 and January 4 to February 17 were at a time when children normally do their best work, after having settled down from summer vacation and before the warm days begin when they are restless and thinking of the coming vacation.

The author realizes that the findings of an exploration carried on in so small a group and for so short a time is rather limited in validity. Identical explorations carried on with other fourth grades and the findings compared, would be of great value. It is hoped that these findings may inspire others to make similar explorations and compare the findings. Since the writer has no group with which to compare her own, she cannot state exactly the superiority of teaching where methods are aimed directly at improvement in study skills over that where little or no effort is consciously directed at study skills.

There are some skills such as social expression, defining the problem, hypothecation, applying generalizations, and propaganda analysis, and the attitudes defined earlier, for which there are no adequate tests at this grade level. However, the Iowa Every-Pupil Work-Study Skills Test gives norms for those skills which it attempts to test.²¹ These are the external skills. A note to the teacher with

²¹Spitzer, H. F., and Horn, Ernest, and Staff, Iowa Every-Pupil Work-Study Skills Test (New York: Houghton Mifflin, 1945), p. 8.

this test admonishes her not to lay too much emphasis on norms, since the value of the test is for diagnostic purposes. Nevertheless, it gives some basis for comparison with other groups and provides a scale for rating progress made. The Steck Company A Test of Study Skills was also administered.²² It attempts to test both external skills and critical thinking. The external skills were all included in one subtest so that charting progress in individual skills was difficult and in some cases impossible. The skill of graph and table reading was included in this test, whereas it had been omitted in the Iowa test. This was probably due to the fact that the test took in a wider grade range. There are no norms given so that this test is only useful in plotting individual progress. The fact that the test is designed for grades four through nine constitutes a problem in that the area of learning extends over too many grades. The fact that there are so many items that a fourth grade child will not understand tends to discourage pupils. Points gained in the Iowa test were not comparable to points gained in the Steck test. In both tests the writer found that the element of guessing could not be eliminated. Children who were very poor students made relatively high scores on the first test and there was no corresponding increase, in either of the tests, administered in the spring. In some cases the guessing was so pronounced that the second test scores were lower than the first.

²²Edgar, J. W., and Manuel, H. T., A Test of Study Skills (Austin, Texas: Steck Company, 1940), p. 11.

Related Studies

There have been a number of other studies and books which are related to this study. It is the purpose of the writer to discuss, in this section, the relationship of those studies to this one. Detailed aspects of those and other studies will be discussed as appropriate in later sections. The material dealing with the fourth grade level was very scarce. In fact, in no place was the work confined to the fourth grade alone. Material on methods was only fairly helpful.

Linda B. Earhart did a study entitled Systematic Study in the Elementary School which she later re-wrote in simpler and fuller form, entitled Teaching Children to Study. This work was primarily done with sixth and seventh grade children, however, the fourth grade was often mentioned. She divides logical study (which is apparently synonymous with critical thinking in the minds of many writers) into two kinds (a) inductive (b) deductive. The elements in "a" she lists as (1) collecting data, (2) selecting or evaluating data, (3) organizing data, (4) scientific doubt, (5) hypothecation, (6) verification, (7) place of memorizing, (8) preservation of self in and through study. The elements in deductive study "b" are (1) begin with general knowledge, (2) necessity of understanding the problem, (3) generalization, (4) study of typical forms, (5) use of analogy, (6) doubt as source of the problem, (7) collecting data, (8) sources of data, (9) organization of ideas, (10) evaluation, (11) suspension of judgment, (12) testing the theory, (13) memorizing, (14) self-expression and self-development through deductive study.

She raises the questions: (1) Do children possess the ability to study logically? (2) Are children taught to study logically? (3) Can they be taught to study logically? She concluded that children can be taught to study logically but that very few are.

Lastly and most helpfully she gives suggestions for training children to study. These are: (1) Teachers should so direct experience so that problems will arise naturally out of a child's consciousness of need. (2) Children using the new type of study need not be under rigid discipline but need to respect the rights of others. (3) Children need to recite loudly enough, clearly, and concisely. (4) They must learn to criticize and take criticism, thus learning initiative. (5) Children should learn to state questions correctly and briefly. (6) They learn to place value on ideas by making questions for paragraphs or sections and giving captions for pictures.²³

This is a very old book, published in 1909, but very helpful and quite inspiring. It both suggested methods for teaching and ideas for some hypotheses for the present study.

Bessie W. Stillman has written a book entitled Training Children to Study. This book was the outgrowth of her work with sixth and seventh grade children in the Ethical Culture School of New York City. She, however, mentions younger children quite often though rarely any particular grade level. The work is limited almost entirely to the social studies and the language arts. She gives great emphases to the

²³Earhart, Linda B., Teaching Children to Study (New York: Houghton Mifflin, 1909), p. 182.

"cultivation of attitudes" which form the basis on which all real study rests. These she discusses as: (1) suspension of judgment, (2) perseverance, (3) sustained interest, (4) purposefulness, (5) interest in improvement, (6) regarding a job well done as sufficient reward, (7) a quietness in endeavor as opposed to over enthusiasm. Beside this she discusses some elements in study and methods she used with older children. The book was quite helpful in justifying the writer's problem and suggesting the hypothesis dealing with attitudes.²⁴

P. J. Zimmers' Teaching Boys and Girls How to Study is a brief account of an experiment conducted in schools of Manitowac, Wisconsin, for the purpose of bringing about better study on the part of students. An investigation of classroom procedure to determine the nature of study activities and the relative amount of pupil and teacher activity was made throughout the schools. After the teachers had been given training in methods of teaching for directing study, classroom was re-organized on the basis of promoting pupil activity. Definite standards to use in judging the effectiveness of the recitation were given to the teachers and supervisors.

After this plan of classroom procedure had been in operation two years an examination of the results indicated that student activity occupied the greater part of classroom work whereas up unto this time from 70 to 90 percent had been devoted to teacher activity. The most

²⁴Stillman, Bessie W., Training Children to Study (New York: D. C. Heath and Company, 1928), p. 247.

important changes brought about by this kind of teaching was: (1) responsibility and self-activity on the part of the pupil, (2) responsibility for conduct of the classroom accepted largely by pupils, (3) pupils able to select basic facts with details necessary to support them and eliminate remaining information, (4) problems in discipline were reduced because pupils regarded laws of the school as not being imposed upon them.²⁵

His study is related to this one in that it suggested hypothesis dealing with democratic behavior.

Howard Anderson conducted a study entitled Testing Basic Skills in the Social Studies. Its purpose was, through analysis of certain results obtained in Iowa from test of basic skills (1) to call attention to the comparative failure of pupils to master these skills, (2) to suggest types of objective exercises which may be used both in the diagnosis of deficiencies and in remedial teaching.

He analyzed the percent of gain in each grade and found it slow. He found high school classes unprepared.

He concluded that objective type of exercises were useful both in diagnostic and remedial teaching, and that drill must be the means to an end.²⁶

This study suggests means of teaching the external skills.

²⁵Zimmers, P. J., Teaching Boys and Girls How to Study (Madison, Wisconsin: Parker Company, 1922), p. 59.

²⁶Anderson, Howard, "Testing Basic Skills in the Social Studies," Elementary School Journal XXXVI, (Chicago: University of Chicago Press, February 1936), pp. 424-435.

Julius Boraas' book Teaching to Think was one of the most helpful in working out hypotheses concerned with methods of teaching and also in working out a definition of study. He states that thinking will (1) require specific aim, (2) grow by process of trial and error, (3) develop by process of actual practice, (4) grow with teacher's assistance provided the pupil verifies the advice by his own practice, (5) grow on maintaining level of interest through record of improvement, (6) grow by avoiding excitement, (7) begin with a practical situation.

He says that the greatest contribution in teaching is to develop thinking. He recommends activities (mostly for older students) that will develop (1) judgment, (2) cooperative thinking, (3) initiative in thinking, (4) imaginative thinking, (5) problem solving, (6) critical thinking. Though these types of thinking cannot be completely separated, he discusses each to a separate chapter for the sake of convenience.

To develop judgment children should be required to (a) make comparisons, (b) determine relative importance or values, (c) weigh evidence or test inferences and conclusions regarding things, persons, situations, and ideas, (e) develop criteria regarding aspects to be considered such as (1) social values, (2) esthetic values, (3) religious values, (4) political values, (5) score cards for anything they are concerned with, such as bulletin board, class president or class discussion.

Julius Boraas says that cooperative thinking (1) acts as a stabilizer for the individual thinking and the reverse is also true,

(2) every pupil must exercise his own judgment, (3) individual judgment may, whenever it seems desirable, be anonymous, (4) a definite group judgment expresses the exact opinion of the group with regard to the matter in question, (5) the individual can compare his opinion with that of the whole, (6) comparison of individual judgment stimulates vigorous thinking and discussion, (7) the teacher can discover abilities and weaknesses in judgment of the individual, (8) the teacher can compare her own opinion with the group, (9) it demonstrates how public opinion can be modified and how its strength will vary with the degree of unanimity, (10) may show that sufficient information has to be obtained before an opinion can be formed, (11) develops leadership in thinking, (12) changes hard thinking into a competitive game.

To develop initiative in thinking he recommends that (1) a child or children be appointed to quiz the class for review, (2) children learn to tabulate the results of class thinking, (3) children learn to formulate questions to be studied.

Formulating questions (1) calls for initiative, (2) teacher can study each child's individual attention, (3) furnishes material for vigorous discussion, (4) cultivates analysis and interpretation, (5) exercises judgment of relative values, (6) teaches suspension of judgment, (7) practice in group teaching, (8) teacher may judge if question is idle curiosity or vital.

Devices for developing imaginative thinking are (1) interpreting ink blots, (2) word building--given words to reconstruct new words from the same letters, (3) sentence building--in the same manner from given

words, (4) imaginative journey--teacher gives directions and distances, children draw a map of where they would go, (5) rhyming words, (6) organic imagination--let children think of words and things to think about that make them happy.

The causes of difficulty in problem solving are listed as (1) obscurity of the sensations; that is we fail to see, hear, smell, taste, or sense clearly the objects before us, (2) difficulties in recognition or comprehension, due to lack of information about the thing observed, (3) lack of suitable words or expressions with which to describe an experience, (4) failure to separate a problem into smaller problems--analysis, (5) lack of skill in discovering, clearly stating, and retaining in mind a specific objective to be attained in a given situation, (6) lack of reliable and accurate information, (7) lack of imagination and inventiveness, (8) lack of critical ability, (9) lack of efficient cooperation.

To develop skill in problem solving and reflective thinking he says a teacher should (1) get students to define the problem; (2) get them to recall as many related ideas as possible by encouraging them to (a) analyze the situation and (b) formulate definite hypotheses and to recall rules or principles that may apply; (3) get them to evaluate carefully each suggestion by encouraging them (a) to maintain an attitude of unbiased, suspended judgment, or conclusion, (b) to criticize each suggestion, (c) to be systematic in selecting and rejecting suggestions, and (d) to verify conclusions; (4) get them to organize their material so as to aid in the process of thinking by encouraging them

(a) to "take stock" from time to time, (b) to use methods of tabulation and graphic expression, and (c) to express concisely the tentative conclusions reached from time to time during the inquiry.

Specific things in which pupils should be trained to exercise criticism are (1) critical judgment regarding the desirable and undesirable qualities in individuals, (2) selection with respect to things that people say--relevancy, (3) judgment of methods of work, (4) develop efficiency in reading through intelligent discrimination not only with respect to what book to read but also in regard to the contents of the books which one does read.

The following types of exercises for pupils are recommended as specific things that can be done to develop critical mastery in reading:

- (1) Paraphrase difficult sentences or paragraphs into simple direct statements,
- (2) Illustrate abstract ideas by concrete examples,
- (3) Condense long discussions into brief summaries,
- (4) Make ideas stand out clearly by stating the negative of positive propositions and vice versa,
- (5) By using a simple scheme of symbols indicate in the margin the relative importance of the ideas presented,
- (6) Write topic sentences for the important paragraphs,
- (7) Write marginal summaries of important paragraphs,
- (8) Write chapter or topic summaries,
- (9) Reduce arguments to briefs,
- (10) Prepare outlines and diagrams,

(11) By using tables of contents, and after preliminary survey of a book, prepare a set of problems or questions to be used as a guide in the reading,

(12) Try to anticipate the answers to be found,

(13) List the most important ideas in a book,

(14) Demonstrate the value of these ideas by showing what can be done with them.

He suggests that a teacher develop self-criticism in the pupils by allowing them ample opportunity to criticize themselves before someone else does.

Finally he states that critical thinking makes three demands:

- (1) It insists on clearness, (2) It demands actual facts in the case,
- (3) If it is effective thinking, it demands results.²⁷

Frank W. Thomas in his book, Training for Effective Study, gives a practical discussion of effective methods for training pupils to organize their study procedures.

Instead of training teachers to assign lessons, control discipline, and hear recitations from textbooks, which the pupils have been directed to memorize, he would have teachers trained to direct pupils in study habits, and thus emancipate them from a dependence on both textbooks and teachers.

He does not limit his discussion to any one grade or subject, but rather gives an all over view of study procedures from the first grade through high school. However, this book has been very helpful in organizing hypotheses.²⁸

²⁷Borras, Julius, Teaching to Think (New York: Macmillan Company, 1922), p. 273.

²⁸Thomas, Frank W., Training for Effective Study (New York: Houghton Mifflin, 1922), p. 251.

George D. Strayer and Naomi Norsworth in their book, How to Teach, include a chapter on "How to Study." They list the general factors in all types of study as (1) clear purpose, (2) vital interest, (3) concentrated attention, (4) critical attitude. They discuss the place of (1) habit, (2) memory, (3) understanding, (4) association, (5) judgment, (6) analyzing the problem--framing questions, (7) use of books, (8) responsibility of the individual. The book was helpful to a fair degree in organizing hypotheses related to attitudes.²⁹

Wallace J. Howell conducted a study for the purpose of measuring the progress of a year's intensive work on work-study skills of Grades IV to VIII, involving 264 children. He concluded,

First, where possible, focus the program on the central library, for this room is the arena where the battle of work-study habits will occur as long as the child remains in school. Second, the Iowa Every Pupil Test of Basic Skills, one of few tests that attempts to measure this area is recommended for both diagnostic and remedial procedures. Third, cooperative effort on the part of all concerned can be secured when the need for a program of this kind is revealed. Fourth, the slow-learning groups need this program and will benefit to a degree commensurate with the effort put into making the program function. Fifth, the techniques of teaching work-study skills must be incorporated into all lesson plans each day. Sixth, intensive work in teaching proper work-study skills should begin at least in Grade IV, since the greatest improvement appears in the intermediate grades.³⁰

This study was helpful in formulating the first and second hypotheses (see page 34) and in determining means to test them. (The Iowa Every-Pupil Test of Study Skills.)

²⁹Strayer, George D., and Norsworthy, Naomi, How to Teach (New York: Macmillan Company, 1918), pp. 104-120, 220-234.

³⁰Howell, Wallace J., "Work-Study Skills of Children in Grades IV to VIII," Elementary School Journal, Vol. L (Chicago: University of Chicago Press, March 1950), p. 389.

The range of work habits and study skills as presented by E. R. Smith and Ralph W. Tyler was one of the most complete inventories of all phases of study procedure. There are nine big headings with several subheads under each. The headings are I Effective Use of Time, II Conditions of Effective Study, III Effective Planning for Study, IV Selection of Sources, V Effective Use of Various Sources of Data, VI Determining Relevancy of Data, VII Recording and Organizing Data, VIII Presentation of the Results of Study, IX Habit of Validating Each Step in an Investigation.

An excellent score card was given. The card was for English but could be adapted to other subjects. Under the main headings there were also subheads. These headings are I Work Habits and Work Skills, II Techniques and Skills, III Communication, IV Mastery of Processes of Reflective Thinking.³¹

This book was very very helpful in organizing hypotheses, despite the fact it was written for high school teachers.

A study, which should have been very helpful to the writer, was conducted by Nora Looney. Its title is A Program for Developing Study Skills in the Sixth Grade. She had no hypotheses and her aims and conclusions were poorly stated, in that they were vague and difficult to locate. No attempt was made to define terms so that the writer could only surmise just what skills were to be developed. The aims common to all units of work were listed as (1) train children in effective study

³¹Tyler, Ralph W., and Smith, E. R., Appraising and Recording Student Progress (New York: Harper and Bros., 1942), p. 550.

skills, (2) to make independent thinkers, (3) to free children from teacher as much as possible. The methods used were poorly stated. However, the writer has summarized them as follows: (1) good classroom conditions, (2) a friendly happy atmosphere through games, songs, and group discussion, (3) teacher secured inventory of ability, interest, and background, (4) free reading, individualized assignments, use of interest in reading, wide variety of reading materials, and instruction in many kinds of reading, (5) correlation or integration of geography and history, (6) motivation for each unit of work through reading stories to the children, pictures, and discussion, (7) group planning for activities to be experienced, (8) children establishing aims through writing appropriate questions for study, (9) teacher made outline for children to fill in the details. Her work was confined to social studies and reading. Means of evaluation were (1) Iowa Silent Reading Test, (2) informal tests, (3) teacher-pupil conference, (4) review of material in children's folders, (5) teacher observation. The outcomes that were listed were (1) personality and social adjustments, (2) wider range of interest in reading, (3) self reliance and initiative on the part of each child, (4) cooperative attitude, (5) teacher growth in recognizing needs, better preparation, and better technique in teacher-pupil conference and case study.³²

Because of the vague descriptions and poor organization of this study, it was of little help to the writer.

³²Looney, Nora A., "A Program for Developing Study Skills in the Sixth Grade" (Unpublished M. S. thesis, The University of Tennessee, 1940), p. 89.

Roy C. Bryan conducted an experiment with students of Western State High School at Kalamazoo, Michigan, in methods for teaching critical thinking. An outline of means of presenting material to the students is published in a manual for teachers and students, entitled Seven Rules for Clear Thinking. These rules with suggestions are given below:

1. Prevent your feelings from dictating your thinking.

People tend to believe only what they want to believe.

Do not use name calling and emotionally toned words.

Use emotions for a driving force, but not to cloud the mind.

Don't push the other fellow faster than he can move. Let him save face.

Try never to use very positive words like "undoubtedly" and "positively."

Ask yourself "Am I unprejudiced, open-minded? Do I consider both sides of the situation?"

2. Suspend judgment until you are justified in reaching a conclusion.

Define the problem.

Plan the solution.

Gather evidence.

Draw conclusions.

3. Strive to identify assumptions.

An assumption is simply an opinion, guess, or theory, of which remains to be determined.

Assumptions are stated or unstated.

An identified assumption is one that the owner knows he is making.

Acceptance of an assumption obligates one to accept the conclusion that logically follows.

Learn to use the word "some" rather than "all."

Some assumptions are necessary for normal life.

4. Insist on adequate cross-section samples of the whole unit.

Do this before drawing conclusions about the whole unit.

5. Beware of analogies, even though they help to make thoughts clear and suggest solutions to problems; they never prove anything.

6. Call for evidence of cause-effect relationship.

Be sure that they are not just assumed.

Many advertisements try to get readers to assume the relationships.

Cause-effect relationships are sometimes complex and hard to identify.

7. Organize your thoughts.

Outline. This helps you to distinguish between important and unimportant ideas.³³

This experiment is related to that of the writer's in suggesting hypotheses dealing with critical thinking attitudes and procedures.

³³Bryan, Roy C., Seven Rules for Clear Thinking (Ann Arbor, Michigan: Edwards Bros., Inc., 1947), p. 78.

The chapter, "Understanding in the Social Studies," in the Measurement of Understanding seems to be written primarily for teachers above the fourth grade. However, the outline for the chapter which was developed for the three objectives of the social studies was helpful in organizing the hypotheses of this study. These objectives are (1) acquiring functional information, (2) analyzing social problems, (3) practicing desirable social relations. The outline is as follows:

A. Acquiring functional information

1. Understanding special vocabulary of the subject
2. Understanding chronological relationships
3. Understanding maps
4. Understanding graphs and tables

B. Analyzing social problems.

1. Knowledge of important concepts, generalizations, and findings as a prerequisite to reaching valid conclusions about social problems
2. Locating, selecting, organizing, and evaluating information
3. Drawing conclusions and stating them effectively
4. Applying social facts, generalizations, and value principles to new problems.

C. Practicing desirable social relations

1. Understanding and developing values consistent with the democratic way of life
2. Understanding the social implications of specific facts and types of behavior

3. Understanding the importance of social action.³⁴

Hypotheses

The hypotheses set up for this study include:

- A. Specific teaching for study skills will result in improvement in the use of these skills.
- B. Testing those skills that can be adequately tested will reveal strengths and weaknesses in teaching.
- C. Study skills can be developed as wholes, rather than in isolated parts, used in the normal development of class procedures rather than in artificial situations.
- D. Problem solving techniques will facilitate the acquisition of study skills.
- E. There are some study skills that are common to social studies and other subjects such as:
 - 1. Problem solving
 - 2. Selecting the important idea
 - 3. Organization of ideas
 - 4. Others
- F. Some methods of teaching are better than others.
 - 1. Skill in understanding printed materials will be strengthened by exercises in:

³⁴Anderson, Howard R., Forsyth, Elaine, and Morse, H. T., Measurement of Understanding (Chicago: University of Chicago Press, 1946), pp. 3-38.

- a. giving captions to pictures on bulletin board, in books and used in the opaque projector
 - b. making and interpreting maps
 - c. making and interpreting graphs
 - d. vocabulary study in connection with unit of work being used at the time
 - e. use of My Weekly Reader
 - f. picking out important idea in paragraph in text or other selected material
2. Skill in defining the problem will be strengthened in
- a. deciding what is the author's purpose in writing our text
 - b. deciding what things we will study in each large unit
 - c. deciding "What question or questions do we ask ourselves" in order to decide what to include in oral and written reports.
3. Skill in hypotheccation will be increased by
- a. recalling what we know about the units to be studied
 - b. taking some forward looks through the text and making some "reasoned guesses" about the things we will find out
 - c. applying some generalizations to climate, clothes, food and shelter of each country we take up
4. Skill in collecting data will be increased by
- a. collecting appropriate news items from newspaper for morning opening exercises

- b. exercises in connection with the unit of study at hand, in the use of
 - (1) dictionary
 - (2) alphabetizing
 - (3) index
 - (4) table of contents
 - (5) preface
 - (6) summary
 - (7) and other book cues
- c. using references in collecting material for oral and written reports
- d. field trips
- e. interviews
- f. inductive reasoning discovering factors that affect climate, food, clothes and shelter at the beginning of the unit in early fall
- g. deductive reasoning in applying principles to type of climate, etc., each country will have
- h. cooperative thinking and planning in class
- 5. Skill in evaluating data will be increased by
 - a. learning some of the steps in propaganda analysis and attempting to apply them to things they hear and read such as radio talks, actual conversations, advertisements, etc.
 - (1) identifying assumptions
 - (2) discriminating between facts and opinions

- (3) discriminating between what is true and what is probably true
 - (4) identifying statements that play on emotional bias
 - (5) identifying appeal to authority as justification for argument
- b. collecting news items
 - c. collecting data for reports
 - d. referring to defined problem
 - e. class evaluations of individual reports
 - f. self evaluation of work by check lists and rating sheets
 - g. discussion and collecting criteria for evaluating work, books, radio programs and picture shows
 - h. collecting material for pupil lecture or pupil (or committee) quiz
 - i. deciding what to include in illustrated map
 - j. deciding what to include in a diarama, table show, or peep show
6. Skill in organizing data will be increased in
- a. making oral and written reports
 - b. map making
 - c. graph making
 - d. bulletin board display
 - e. arranging pictures for pupil picture lecture
 - f. class planning for work to be done
 - g. making check lists for study skills

- h. making comparisons of countries for
 - (1) likenesses and differences
 - (2) cause and effect relationships
 - (3) evidence and contributions of civilizations
 - i. learning to define the problem
 - j. making list and using book cues, such as italics, 1, 2 and 3, headings, etc.
 - k. outlining (class work)
 - l. arranging peep shows, table display, etc.
 - m. making individual booklets
 - n. memorizing
 - (1) for future rule or principle
 - (2) through association
 - o. recall for hypothecation
 - p. arranging questions for individual or committee quiz
7. Skill in drawing conclusions will be increased in
- a. stating generalizations, rules, and principles arrived at through inductive reasoning
 - b. making summary statements at close of report and large units
8. Skill in verification will be increased by
- a. applying rules and principles to food, clothing, shelter and climate with each unit of work
 - b. verifying hypotheses at close of each large unit and at close of the year.

9. Social expression of findings will be increased through

- a. class discussion
- b. class planning
- c. oral reports and written reports
- d. drawings
- e. dramatizations
- f. maps, graphs, and charts
- g. peep shows, table scenes, etc.

G. Some specific attitudes and conditions are necessary for maximum development of desirable study skills. (In a sense acquiring these attitudes are a part of the skills.)

1. A relaxed atmosphere and democratic procedure will aid the development of study skills.

- a. Problems shall grow out of the experience of the children or some situation in relation to the children.
- b. Children should feel free and be encouraged to ask thoughtful questions.
- c. Children should regard cooperative thinking as one means of testing and evaluating individual thinking.
- d. The child's personality must be preserved and developed.
 - (1) He must learn to subordinate his own ideas to others only after careful consideration.
- e. Children must know when it is best to engage in physical activity and when it is best to refrain from such and act accordingly.

- f. Work should be arranged according to the individual's ability
2. Interest in the problem or material to be handled is necessary.
3. Vigorous application of one's energies are necessary for maximum development of study skills.
4. Children must regard textbooks and all other sources of information as a means to an end.
5. Children must regard books as being made up of facts of major and minor importance.
6. Children must regard the author of a book as having a specific purpose, a specific point of view, a personal bias and subject to error.
7. Children must have a critical attitude toward themselves as well as others.
8. The teacher must regard subject matter of instruction as a means of training for work in study skills.
9. The teacher must regard what the children are doing in class as being more important than what she is doing, as a criteria for good teaching.
10. Good physical conditions of the room are necessary for maximum development of study skills, such as heat, ventilation, lighting, etc.
11. Suspension of judgment is a necessary part of effective study.

12. The child must use study time effectively:
 - a. meet study obligations promptly
 - b. carry work through to completion
 - c. ask for help only when he can help himself no longer.
- H. All children will not develop study skills at the same speed or to the same extent.
- I. All children will show some progress in some skills.
- J. The teaching of some skills should be postponed to higher grades due to the lack of need for those skills in the fourth grade and to the immaturity of children at that age level.

Procedure

In beginning this study, the writer reviewed current literature to determine what skills should be taught in the fourth grade, and listed all the methods and procedures that she could find. She found no material that indicated any specific skills should be taught in the fourth grade. She found a little material dealing with the intermediate grades, and a great deal that dealt with Junior High and High School. The methods and procedures that could be adaptable to the fourth grade, she incorporated in the hypotheses, as listed in this chapter.

A search for ready-made tests, suitable for this grade, revealed the Iowa Every-Pupil Work-Study Skills Test and Steck Test of Study Skills. These tests were administered in the fall and another form of the same tests were administered in the spring to help determine how much progress had been made. Since reading is also a study skill, My Weekly Reader reading tests were also given in the same manner.

After administering the tests in the fall the writer gave the children added experiences in those skills in which they made the lowest scores, through class instruction, individual help, and assignments. She continued teaching for development in those skills in which they rated highest. Records of individual progress were kept, by means of rating sheets, observation, appraisal of student writing, and pupil interview. A record was kept of activities that aided development in study skills. Records of class assignments, teacher made tests, individual work (good and bad), check lists, memoranda, and committee reports and quizzes were also kept. Profile charts and class score sheets were filled out and kept.

All materials were collected and analyzed in the light of the purposes and hypotheses of this study.

CHAPTER II

OVER-VIEW OF YEAR'S WORK AND CLASSROOM MANAGEMENT

Introduction

This chapter will give a brief over-view of the large units that were developed in the course of the year and the kind of activities required in each field. Although these units are classified under subject matter headings, no attempt was made to keep them in isolated parts; indeed, the opposite was true.

This chapter will also be devoted to special methods of classroom management as they have been developed by this teacher over a period of five years in the fourth grade.

The Year's Work

Reading

1. My Weekly Reader and its accompanying activities were used throughout the year.¹

2. Reading from reading textbooks, with appropriate accompanying exercises in word attack, context clues, word analysis, and word meanings was done daily. Reading was done silently in part and orally in part as the occasion demanded.

¹Gray, William S., and Gates, Arthur I., My Weekly Reader (Columbus, Ohio: American Education Press, 1952).

Among the better readers, much "skipping about" was done from one book to another and from section to section within each book, so as to be reading stories that were appropriate to the units being studied at the same time, in science and social studies. With the poorer readers this was not possible because it was necessary to maintain a carefully graded vocabulary. However, at the last part of the year, as the children increased their reading ability, some of this kind of reading was done, much to the delight of the children.

3. Recreational reading was carried on all through the day when the individual child had finished his required work and was free to do whatever he chose. The reading material came partly from the Lawson McGhee Library and partly from the Board of Education Library. The latter allowed each classroom a selection of general and specific subjects of from twenty-five to seventy-five books each month with the privilege of renewing as many books as the teacher felt was necessary.

4. Reference reading in connection, particularly with the social studies, was done from these two libraries. Several of the children had encyclopedias and other reference books in their homes. Occasionally, they would bring these to school and share them with the class, as did the teacher also. One child brought a good atlas to school and loaned it to the class for the year. At other times children brought other good references from home and also from the branch library of Lawson McGhee, in the neighborhood. The librarian was very efficient in helping the children find books appropriate to their reading level and to the subject chosen.

Spelling

1. A workbook accompanies the regular text, in which there are many kinds of activities related to spelling.
2. In addition to this some words used in connection with other units were learned.

Other Language Arts

1. A study was made of antonyms, homonyms, and synonyms.
2. Correct usage of verb forms, adjectives, and adverbs was stressed throughout the year.
3. Paragraphing was studied, in connection with stories, written reports, and letters.
4. Letter writing was discussed and put into practical use.
5. Oral and written expression was given the major emphasis of the year through class discussion and through reporting in science and social studies.

Arithmetic

1. The first work of the year was a review of addition and subtraction facts. This was followed with the processes of carrying and borrowing.
2. Reading large numbers was given attention principally in connection with other subject matter.
3. The major emphasis was placed on the multiplication and division facts, the ability to multiply two, three and four number

combinations by two or three numbers, and the ability to divide three and four number combinations by one number.

4. Some work was done in weight and measure.

5. Some work was done in line and bar graphs in connection with weather reports and individual progress sheets.

Health

1. Daily care and cleanliness of the body was the first large unit that was carried through the fall and referred to through the entire year.

2. Health and sanitation, as it coincides with study of foreign lands, were discussed throughout the year.

3. A study of the seven basic foods occupied most of the time at the middle of the year.

Music

1. Singing artistically and reading music from the text was a part of every week's work.

2. Other appropriate songs, as the seasons or other subject fields demanded, were learned.

3. Folk games and dances were learned as part of the physical education program.

4. A study of the instruments of the orchestra and listening activities, was made in the spring.

Art

1. Special instruction was given in (a) finger painting, (b) cut paper, (c) clay work, (d) papier mache, and (3) Christmas decorations.

2. Other activities were integrated in the general body of subject matter all through the year, as will be shown in later discussions in this study.

Science

1. The first unit in the fall was on the life of the social insects, the honey bee and the ant.

2. Conservation of our natural resources was the next unit, and it continued up to Christmas. It was a difficult unit but proved very helpful in all the units on foreign lands that were taken up after Christmas.

3. This was followed by a brief study of the major parts of our earth, land, water and atmosphere. It was rather formally conducted and not very interesting.

4. Stars and planets were studied during the substitute teacher's stay. A few children volunteered to report on specific planets.

5. Upon the return of the regular teacher, an intensive study was made of birds in this area, and a few common garden flowers were studied.

6. A brief survey of common rocks and minerals was begun but hastily finished at the end of school.

Social Studies

1. An introductory unit on how people of Knoxville provide themselves with food, clothing and shelter, and the effect climate and location have on these necessities, was begun early in the fall. This unit was interrupted and dragged out over a period of time, not originally planned, because of the teacher's injury. Many of the original activities, such as field trips, and visiting resource people, had to be abandoned. However, this unit was a great help in getting the children started in good study habits and helped them begin to acquire some study skills, such as framing the question and summarizing. It provided them with fine experience in formulating goals and procedures for the year.

2. Jungle life in Malaya was the next unit. It was formally presented and executed by the substitute teacher.

3. Eskimo life on Baffin Island was the next unit and in this case the children wrote reports that were more or less brief summaries of the material in the textbook. The teacher felt that this was a good means of introducing the children to methods of reporting. This unit was also taught by the substitute teacher.

4. A brief unit on the nomadic life of the Kergez Steppe was the next undertaking. In writing reports no reference work was done but the problem approach and summary were used.

5. Life on the Congo River was briefly taken up by the substitute teacher.

6. Intensive work in study skills and reference reading for reports and class discussion began with a unit on Egypt. This unit was made more interesting by a visit of an Egyptian student.

7. With enthusiasm rising and a growing power of knowing how to study, the class launched into a study of life in India, particularly of the farmers, but also other phases of Hindu life such as religion and customs, and other occupations. This seemed to be the most meaningful unit, and the children enjoyed its every aspect.

8. A study of China was briefly made near the close of the school year. The same approach was made to this unit as was made to all the units since the Kerges Steppe.

Classroom Management

Some methods used in classroom management will follow. Beginning the first week of school, a class chairman was chosen by the teacher for the first two or three weeks. After this a new chairman was elected by popular vote each month. A discussion of the qualities necessary for this kind of a position was carried on before the first election. Before each election thereafter these qualities were reviewed. Admirable selection was shown by the group each time. Such had not been the case with the class of the preceding year on two occasions. This may have been partially due to the fact that this class had ample opportunity to make comparisons of good and poor chairmen. While the

teacher was absent the substitute teacher had appointed a new chairman every week, in an effort to see that everyone had a chance at this experience.

It was the duty of the chairman to preside at the opening exercise and call for each activity in its proper order. The "Bible Reading" sign was hung on the door, the room was called to order and the name of the person (previously arranged) who was to read the Bible and conduct the prayer was announced. The children had free choice of their selection. They could read from the Bible, recite memorized verses, or read from a Bible storybook. They could read from any prayer book of their choice, lead the Lord's Prayer in unison or pray extemporaneously if they chose. There were three Jewish children in the room. The Lord's Prayer was seldom used. The writer cannot say that it was because of these children, for the subject was never discussed. Every effort to arrange things tactfully was made by the teacher. At the time of Jewish Holidays one of these children was called upon to explain to the class the significance of the holiday, and the teacher often read from a book, explaining somewhat more in detail the Jewish services and customs. At Christmas time one of the children brought in a replica of their ceremonial lamp and another told the story of the Maccabees whose victory they celebrate at this time. Another child brought in her gifts which she received just as Gentile children received them at this time for Christmas.

It was also the duty of the chairman to appoint one child each day to bring an appropriate news item from the daily newspaper and

report on it to the class. Beside this, every child was required to bring one other item during the six-week period. They could do this at any time they chose. After the item had been given, the chairman called for volunteers. Sometimes there were as many as six or eight other items reported in one morning. Often children brought eight to twelve items in the course of the six weeks. A notation of the number of news items reported by each child on his report was made. Parents seem to appreciate this.

Because at this time many children kept bringing in objects of interest for the class to see, one chairman of the preceding year instituted the call, "Anything to show" as a regular part of the program. Nothing was barred and one time a child even brought an old evening dress that she liked to wear while playing. However, things to show usually consisted of nature objects, curios, collections and presents. Occasionally pictures of current interest, encyclopedias, and other books were brought.

The chairman called for "Personal News." A discussion of the kind of things that were appropriate preceded this activity the first week. Never did a child tell anything at this time that should not be discussed in public. Again a variety of things might be brought up, but there usually was a recitation of funny things little sisters or brothers said or did, antics of pets, an account of trips or plans of trips, surprises, or unusual things that they had been doing.

This closed the morning exercises except on Wednesday and Friday when the "nurse" and the "doctor" reported on all A's made for the week

for health habits. A "nurse" and a "doctor" was appointed each week by the room chairman. It was his or her duty to inspect each child as they come in for clean handkerchief, clean nails, and teeth brushing. A report was kept for a week by these two children and submitted to the teacher, signed by them. The teacher used these reports and personal observation to record health habits ratings on the grade cards. Only on one occasion was there any dispute about the accuracy of the report. In general the children respected the opinion of the examiner and enjoyed an opportunity to share the responsibility. For an example of record see Appendix A.

A chairman for "room duties" was appointed by the teacher the first week of school. This child kept a record of tasks to be done and the name of the person who was appointed by her to do each task. She appointed children for a week at a time and by keeping a record was able to see that all children shared in all responsibilities some time during the year. These tasks were dusting the room, keeping the board, watering the flowers, distributing towels at the lunch period, giving out milk at lunch, cleaning up the art table and care of playground equipment (rope, ball and bat).

The teacher appointed a librarian for the year, a person to keep the bulletin board in order and a child to keep a Sunday School Attendance graph. In addition children volunteered to keep a graph of the weather as reported by the local paper, and a graph showing how many perfect scores there were on spelling each Friday.

Every effort was made to see that every child had an opportunity to express his opinion both in class discussion and in personal disagreements, as long as he did it in a courteous way.

Pupil-teacher conference was a part of nearly every day's activity, and though not exactly a part of classroom activity the teacher-parent conference had a great deal to do with classroom management. These conferences were conducted face to face, on the telephone, and by note. Aside from this, there was a special report card of study habits, sent out three times in the school year (See Appendix B). Attached to the regular report card was a sheet on which the teacher recorded the number of news items a child had reported, the number of times he had stayed in for disobedience, the number of times he had stayed to study spelling. On this sheet comments were made from time to time, on the work and efforts of the child, and the parents in turn added comments and suggestions. The teacher and parents worked closely together in this way. After the first tests of study skills were given in the fall, a letter was sent to the home of each child explaining the purpose of the test and giving the child's score. In the spring another sheet was sent giving a summary of the test results (See Appendix C). Folders were kept for each child and these were sent home for the parents' inspection twice in the school year. Into these folders went all the papers that were checked or graded by the teacher. If a paper was not handed in through negligence, a sheet was put in the folder with the child's name, the date and the subject title. Parents' comments on these added means of reporting to them were numerous, interesting and gratifying.

Summary

This chapter has given a brief over-view of all large units of work undertaken for the year. Special methods of classroom management employed by this teacher were:

1. child conducted and child planned opening exercises
2. child planned and child executed room duties
3. child expressed opinions
 - a. child to child
 - b. child to class
 - c. child to teacher
4. methods of reporting to parents and parent-teacher conference.

CHAPTER III

GENERAL ASPECTS OF STUDY SKILLS TEACHING

Introduction

This chapter will be devoted to a discussion of hypotheses A through E (see pages 34-41) and those related studies that clarify these hypotheses or suggest methods of testing them. These hypotheses deal with the more general aspects of teaching study skills other than specific methods for specific skills and attitudes.

The Effects of Specific Teaching for Study Skills

Specific teaching for study skills will result in improvement in the use of these skills. Every effort was made to teach for good study skills and habits, as defined in the first chapter. In almost all cases the skills were taught as the need for these skills arose and became evident to the children. In this way artificial situations were avoided. The exception to this rule was the skill alphabetization. The writer introduced this skill early in the year and a somewhat forced situation, because it seemed that dictionary work would be impossible without it and that the children should have full competence in this skill before taking up the other dictionary skills. The use of guide words as a dictionary skill was introduced after its need was evident to the children. Drill in this work was necessary and drill is

always somewhat artificial. However, most skills received enough practice in actual use. That is, there was little or no drill on material unrelated to the problem at hand.

More specific methods used by the writer in teaching for good study skills will be made apparent as the other hypotheses are discussed in this chapter and in Chapters IV and V.

The Steck Test of Study Skills for Grades 4-9 Form A was administered to the children September 29, 1952. Form B of the same test was administered to the children May 8, 1953, to see if progress had been made under the teaching methods in question. For the same reason the Iowa Every-Pupil Work-Study Skills Form L was administered October 28, 1952, and Form O of the same test was administered May 12, 1953.

The Steck Test of Study Skills by J. W. Edgar and H. T. Manual is designed, as stated by its authors,

. . . to provide an index of the ability to find and interpret printed information. Among the aspects of ability sampled by the test are the following: the sources to which one may go for various kinds of information, the order of letters in the alphabet, the meaning of common abbreviations, the use of the index, the interpretation of diacritical marks, the reading of tables, graphs, and maps, and critical thinking in relation to printed facts.

Part I, Finding and Understanding Printed Materials, is devoted to the more formal side of preparation for effective study. A high score on this indicates that the pupil knows fairly well where and how to get printed materials, and that he understands some of the common forms in which information is expressed. Part II, Critical Thinking in the Use of Printed Materials, tests the pupils ability to think clearly in interpreting statements read. A high score on this section shows that the pupil has ability not only to understand

the printed statements of fact, but to consider them in relation to each other and to inferences which may be drawn from them. It is an approach to, though of course not a complete test of, critical thinking.¹

Of reliability and validity the authors have to say:

In the section of items for A Test of Study Skills an effort was made to include factors which in the judgment of the authors was associated with skill in study. Obviously, in a pencil and paper test of this kind it is impossible to test adequately the actual performance of locating books and finding information for which pupils feel a need in the solution of their own problems. Some items of skill--for example, the interpretation of charts and the use of an index--are sampled in A Test of Study Skills rather directly. In other instances the test merely calls for information which is related in some way to the actual process of studying.

Part II, Critical Thinking in the Use of Printed Materials, employs one of a number of possible techniques. It is a modification of the 'proved true,' 'proved false,' or 'uncertain' technique of classifying statements with reference to given facts. Its purpose is to go beyond the measurement of mere comprehension, as in a reading test and to test the pupil's ability to examine printed statements critically.

The claim for validity rests simply upon the careful selection of items in the limited area which the test is designed to measure. It is believed that the test will be useful in individual guidance and in the motivation of learning. It is not designed as a pattern of either the content or the method of teaching pupils how to use printed materials. The test merely samples information and ability here and there in the total matrix of ability which the pupil has developed.

The correlation of Forms A and B administered an earlier edition to seventy-two pupils in grades four, six, and eight is 0.92.²

¹Edgar, J. W., and Mammel, H. T., Manual of Directions for A Test of Study Skills (Austin, Texas: Steck Company, 1940), p. 1.

²Ibid., p. 1.

Norms for this test are not yet available. Therefore, individual progress could only be noted with no indication as to how well or how poorly a child had done on either form. There was no way of knowing approximately how many items in each test a child could reasonably be expected to make correct responses to. In the case of a conscientious child, this could be very discouraging. The same thing is true of many of the individual items. Some items that would be appropriate to a ninth grade child would be quite out of keeping with material for a fourth grade child. All this is quite discouraging to a child who is faced with a test of this kind for the first time. It can also be quite confusing.

In reviewing this test Douglas E. Skates states, "In the second place, the questions on the several aspects of securing information and interpreting technical material are all mixed together so that they can be arranged spirally as to difficulty."³ The writer found no such advantage.

The grade range of this test seems too wide. Also, as stated in Chapter I there are only two subtests, so that progress in individual skills cannot be adequately plotted. However, this test does attempt to test some skills that apparently should be tested and are not included in the Iowa Every-Pupil Test. These are critical thinking, graph and table reading.

³Buros, Oscar K., Third Mental Measurement Yearbook (New Brunswick: Rutgers University Press, 1949), p. 544.

Both forms of the test were administered in mid-morning, on days when the heat was not excessive and the children were not yet tired. It was seen that each child had two sharpened pencils and only the test booklet on their desks. Answer sheets were not used, but a mark directly on the booklet indicating which choice in each item was made. A thirty-minute period was taken for each of the two subtests, with a rest period of twenty minutes between. The teacher read the directions for taking the test to the children and they marked the sample tests. When it was seen that everyone understood what he was expected to do, the writer marked the time and the children proceeded to take the test unaided.

Directions for scoring are as follows:

The score on Part I is the total number of right answers minus one-fourth the number of wrong answers. The score on Part II is the total number of right answers minus one-half the number of wrong answers. Fractions of one-half or less are disregarded in deducting the wrongs, and fractions of three-fourths are counted as the next highest whole number. Omitted items and items to which the pupil has given two or more answers (unless his choice is clear) are counted neither right or wrong. Negative scores on either part are counted zero. The sum of the scores on Part I and Part II is the score for the test as a whole. If, as occasionally happens, the pupil has simply marked one alternative in a stereotyped fashion the paper should not be scored.⁴

The average score on the first Steck Test was fourteen points.

The average score of the second Steck Test was thirty-two points.

There were no norms for this test so that the raw score stands as

⁴Edgar, J. W., and Manuel, H. T., Manual of Directions for A Test of Study Skills (New York: Moughton Mifflin Company, 1945) p. 1.

presented. These tests show an average gain of eighteen points. The range of the first test was zero to fifty-five and ten children above average. The range of the second test was one to seventy-one with fifteen children above average.

The Iowa Every-Pupil Work-Study Skills Test attempts to measure (a) map reading, (b) use of reference, (c) use of index, (d) use of dictionary, and (e) alphabetization.⁵

J. Wayne Wrightstone in reviewing the test states that although the test is carefully constructed and the test situations are measured as closely as possible to the way they function in everyday activities, the subtests are unreliable for diagnosis of individual pupil achievement. Although the authors of these tests admit this fact they contradict themselves by recommending an individual profile chart, including subtest scores for each child. Further unreliability is made apparent when it is observed that a raw score change of one point will account for a grade-equivalent score difference of from three to twelve months.

The published norms for the test are derived mainly from the use of the test in selected communities which are not representative of the nation-wide population. The experience of several cities which have used the test leads to the conclusion that the norms should be revised. The conclusion is based upon the assumption that a test publisher--distributing a test nationally--has the responsibility of providing

⁵Spitzer, H. T., and Horn, Ernest, and Staff, Iowa Every-Pupil Work-Study Skills Test (New York: Houghton Mifflin, 1945), p. 8.

norms which represent a cross section of the national population. This responsibility cannot be avoided by recommending that it would be a better practice to obtain local norms.

The method of indicating grade equivalents is somewhat at variance with the usual practice; for example, a grade norm of third grade fifth month is reported as thirty-five (without the decimal point) rather than 3.5. This is a minor point, but the idiosyncrasy of the publisher runs counter to accepted practice and no advantages are cited for this unique practice, which may cause some confusion. Teachers and supervisors, generally have accepted the work-study skills test as the most significant contribution of the Iowa Every-Pupil test batteries.⁶

The test was administered in two periods of thirty minutes each with time allotment for each subtest as follows:

Map reading	eleven minutes
Use of reference	eight minutes
Use of index	eight minutes
Use of dictionary	twelve minutes
Alphabetization	eight minutes

The children marked their choices on the test booklet rather than on a score sheet. The test was hand scored. One point was allowed for each correct response. Scores were made for each subtest and totaled for the entire test. These raw scores were converted by means of a conversion table into grade equivalents.

⁶Buros, Oscar K., Third Mental Measurement Yearbook (New Brunswick: Rutgers University Press, 1949), p. 545.

The average score on the first Iowa test was forty-two. (See Table III, page 63.) The average score of the second Iowa test was forty-eight, showing a gain of six months. Norms were given for this test. The first digit to the left represents the grade level, the second digit represents the month of the grade. The range of the first Iowa test was twenty-six to sixty, with fifteen children above average. The range of the second Iowa test was twenty-five to eighty with fourteen children above average.

On the Steck Test one child (see Table III, page 63) retrogressed and one made no progress. On the Iowa Test six children retrogressed and two made no progress. The writer can only suggest that teaching methods possibly made the children more cautious, so that they did not attempt items they felt that they did not understand on the second test, whereas they had made great guesses on the first and only by chance made a higher score than they deserved. It would seem, from observation, that in most cases the second test approximated their true score, whereas the first score was far above what their true score was. The Iowa test is also questioned because of its inconsistency in gain with the Steck Test and with My Weekly Reader test, the results of the questionnaires and observation.

The fact that the first Iowa test average was two months above what would normally be expected of a fourth grade child, and after teaching for study skills the average gain was only six months, might make it appear that the gain was not as great where methods were directly at study skills, as where a teacher made no conscious effort

TABLE III

SCORES DERIVED FROM FIRST AND SECOND TESTING
OF BOTH THE IOWA TESTS AND THE STECK TESTS

Name (fictitious)	Steck Test			Iowa Test		
	1st	2nd	gain	1st	2nd	gain
Joe	55	71	16	43	80	37
J. D.	49	55	6	60	76	16
Julia	36	67	31	55	68	13
Freda	12	36	24	57	68	11
Geraldine	43	57	14	54	62	8
Barbara	21	42	21	52	55	3
Reece	-	50	-	51	55	4
Mary Ann	19	43	24	53	54	1
Ladd	33	67	34	53	53	0
Molly	19	38	19	49	53	4
Dan	23	38	15	43	53	10
Ben	13	31	18	43	50	7
Barton	0	27	27	42	50	8
Boyd	-	50	-	-	50	-
Lucile	14	35	21	42	46	4
Robert	11	20	9	38	46	8
Ernestine	0	38	38	43	44	1
B. W.	8	30	22	43	44	1
Gene	18	24	6	46	43	-3
Pansy	8	12	4	34	43	9
J. T.	2	-	-	36	42	6
Sue	9	14	5	33	41	8
Rebecca	4	38	34	31	41	10
Mary	0	1	1	26	41	15
Elizabeth	0	24	24	40	39	-1
Perry	12	12	0	37	37	0
James	10	20	10	32	37	5
Willard	6	3	-3	40	33	-7
Pan	0	9	9	37	33	-4
J. C.	3	12	9	36	26	-10
Sam	5	22	17	32	25	-7
Average	14	32	18	42	48	6

- indicates child was late entry or absent.

Iowa Test. First digit represents the grade level, the second digit represents the month in the grade.

toward that goal. It does not seem probable, however, that a child would retrogress, or at least that many would retrogress. Assuming that this is true, the first average would be too high and thus the total gain would be greater.

My Weekly Reader sends reading tests along with the yearly subscription three times a year. These tests attempt to test the reading skills, comprehending facts, interpreting facts, vocabulary from context, and selecting story titles.

The purpose of the tests as stated by the managing editor, Eleanor M. Johnson is diagnosis. The teacher's edition that accompanied the test states that the tests are no standardized tests, they do not have national norms. The approximate scores formerly appearing have been omitted in order to focus attention on the true purpose of these tests, namely . . . diagnosis.

The purposes of the diagnostic tests are:

. . . (1) to serve as a diagnostic instrument revealing individual and class strengths and weaknesses in four important silent reading skills, (2) to supplement standardized reading tests, (3) to help teachers improve the instructional program in both basic and supplementary reading.

There are fifteen paragraphs in My Weekly Reader Diagnostic Reading Test. Two paragraphs are written on a level two years below the edition level of My Weekly Reader it accompanies, two paragraphs are one year below the edition level, seven paragraphs are at the edition level, two paragraphs are one year above edition level, and two paragraphs are two years above edition level.⁷

⁷My Weekly Reader, Teacher's Edition, Vol. XXXIV, No. 4 (Columbus, Ohio: American Education Press, 1952).

In December a table converting raw scores in approximate grade levels was sent with a note to the teacher that so many requests were addressed to My Weekly Reader for this information that they were giving it. A similar table accompanied the test that was administered in the spring. The tests were not the same as those which were administered in the fall but of the same difficulty so that the progress could be marked.

A letter to teachers contained the following paragraphs:

Please do not use them (the scores) to label pupils. Please do not enter them on permanent record cards, for they are not standardized. Please do not use them as a basis for comparing pupil performance or teacher competency.

Help us meet the challenge entrusted to us . . . that of using test materials professionally to improve instructional methods.⁸

Since this study is an effort to improve instructional methods, using these test results are in keeping with the request of the publishers.

Since reading is also a study skill and since interpreting facts, vocabulary from context, and selecting story titles requires some critical ability, the results of these tests will help verify the teaching methods employed by the writer.

These tests were administered in the fall and spring (see Table IV, page 66). The highest score made in the fall was 5.6 or fifth grade, sixth month. The lowest score was 2.9 or the second grade,

⁸My Weekly Reader, Teacher's Edition, Vol. XXIV, No. 11 (Columbus, Ohio: American Education Press, 1952).

TABLE IV

SCORES OF MY WEEKLY READER DIAGNOSTIC TESTS
DERIVED FROM FIRST AND SECOND ADMINISTRATIONS

Name (fictitious)	1st Test	2nd Test	Points Gained
Joe	5.6	6.0	.4
J. D.	5.2	6.0	.8
Freda	5.4	5.9	.5
Geroldine	5.4	5.9	.5
Ladd	5.0	5.8	.8
Julia	5.1	5.8	.7
Reece*	-	5.8	.0
Mary Ann	5.1	5.7	.6
Lucile	4.0	5.6	1.0
Barbara	4.5	5.2	.7
Boyd*	-	5.0	.0
Molly	3.9	5.0	1.1
James	4.0	5.0	1.0
Ben	4.2	5.0	.8
Den	4.0	4.9	.9
Pansy	3.7	4.9	1.2
Ernestine	4.2	4.9	.7
B. W.	4.1	4.8	.7
Robert	3.5	4.8	1.3
Barton	3.6	4.7	1.1
Gene	4.0	4.6	.6
J. T.	3.2	4.6	1.4
Sam	3.5	4.5	1.0
Penny	3.3	4.4	1.1
Dillard	3.8	4.4	.6
Rebecca	3.9	4.3	.4
Sue	3.7	4.3	.6
Pat	2.7	3.9	1.2
Elizabeth	3.0	3.9	.9
J. C.	2.9	3.3	.4
Average	4.0	4.8	.8

* New entry

ninth month. The average score was 4.0. The highest score on the spring test was 6.0. However, this test measures only to the sixth grade. The lowest score was 3.3 and the average was 4.8. For more details, see Table IV. Average gain was .8.

The fact that use of skills was improved by teaching methods was verified by questionnaires sent to parents at the close of the year. The children also filled out a questionnaire which did not deal with specific skills but rather with methods. The parents' questionnaire dealt with both.

Appendix D gives both the questionnaire for the children and a summary of their answers.

Appendix E gives a sample of the parents' questionnaire. Following are the results of that questionnaire.

Thirty-one questionnaires were sent out. Twenty-nine were returned. One parent who had two children in this fourth grade returned neither questionnaire.

1. Of the twenty-nine returned, all said that they felt that their child had adjusted to the group and to the teacher and been happy most of the year.

2. Twenty-seven said they felt their child had demonstrated interest in their work, possibly as a result of methods used in this room. One replied, "Yes, at times." One said her child had not shown the interest in her work that she had the preceding year, but she felt that it was due to a change in schools.

3. All said that they had noted progress in the child's ability to concentrate. One added "Definitely" and another said that greater strides had been made in concentration than anything else.

4. Twenty-six stated that their child had given evidence of knowing how to go about studying. One person overlooked this question. Two stated that they had not known how to go about studying.

5. There was little homework definitely assigned, so that five did not answer the question related to the child's going to work promptly. One person said her child sometimes went to work promptly. Seventeen said they did work promptly. This was on tasks, like extra work on vocabulary, tables, and reports that were optional as to the time it must be done. Six said the child did not promptly go to work. Of these six, one said she felt it was her fault for she had not trained him properly before he came to this room.

6. Nine said that work habits (being promoted at school) did not slip over into other fields of activity such as piano practice and tasks regularly assigned them. Five stated "Some." Thirteen stated that they did. One mother said to the writer, "The thing we notice about Elizabeth is that she seems to be thinking about what she is doing. This is the first time she has ever seemed to realize that she had to do more than just spend so many hours in the school room. She studies without being told, she even practices the piano without us telling her and we feel that it is due to your working with her."

7. One parent said she could neither say "yes" or "no" and then made a long explanation why she could not decide if the assignments

were too hard or deep. One said "Very few." Both the mother and teacher worked very hard with her child and the writer had expected the answer to be "Yes." Two did answer "Yes" and twenty-five "No."

8. Twenty-eight parents said there was no special method that they disliked. The same mother who said she was undecided about question seven said that frankly she thought the teacher expected a little too much perfection and responsibility of nine-year olds.

9. On being asked if there was any special thing done that they particularly liked, all answered in the affirmative. Some elaborated on the answer as follows:

"I feel that you have been able to make everyone feel important to the group and to themselves, rather than having a few shining stars."

"The way you work closely with parents." (This from the parent who thought the teacher expected too much.)

"The way you handle children."

"Vocabulary study is difficult but beneficial."

"Opening exercises and news items" was the response from several.

"Your means of teaching to report has stimulated my child's interest in reading. She has gotten a library card and uses it regularly."

"I like the way you have interesting things for the children to do when they have completed their regular work."

"The way you let them bring things of interest."

"I think the reference work is amazing."

Several commented on the way social studies were handled. A few commented on the art and crafts that accompanied large units.

It is the feeling of the writer that all these comments were sincere, for the parent-teacher relationship was such that no one need feel called upon to make a statement that belied their feeling.

10. One parent stated that she could not tell if skills and habits acquired in this class would help children in the future, even if they were not given much attention by the next teacher. Twenty-eight stated that they felt that they would. Five mentioned the means of making reports, particularly.

P. J. Zimmers made a two-year study of schools of Manitowoc, Wisconsin. (See pages 21 and 22 for an account of this study.) He found that teaching for study skills resulted in a high quality of student work and increased independence on their part.

Wallace J. Howell also conducted a study with 264 children in Elmira, New York (see page 28), in grades IV to VIII and found that a year's intensive work resulted in great improvement in the use of the external skills.

These two studies further verify the hypothesis that has just been discussed; specific teaching for study skills will result in improvement in the use of these skills.

Summary

In general, specific training for the study skills defined in this study was presented and taught as the need for these skills arose

and became evident to the children, avoiding all artificial situations when possible. The results of questionnaires filled out by both pupils and parents indicated that the teaching was very satisfactory. Teacher observation of the children actually using the skills indicated progress. The results of My Weekly Reader tests showed the average gain in this skill of eight months with a range of gain from four months to one year and four months. The Steck Teet of Study Skills showed an average gain of eighteen points (raw score) with a range of gain from zero to thirty-eight. The Iowa Work-Study Skills test showed an average gain of six months, with a range of no months to three grades seven months.

The results of these means of evaluating progress indicate, though not conclusively, that specific teaching for study skills will result in improvement in the use of these skills.

Testing for Teaching Effectiveness in Study Skills

The hypothesis to be discussed in this section is that testing those skills that can be adequately tested will reveal strengths and weaknesses in teaching. Hilda Taba states "Evaluation helps to reveal both the effectiveness and shortcomings of the school program in achieving its objectives and often unveils unpremeditated by-products of the materials and methods used."⁹

⁹Taba, Hilda, "Teaching Critical Thinking in the Social Studies" (Washington, D. C.: National Council for Social Studies, 1942), p. 125.

She mentions as some means of evaluation: (1) anecdotal records, (2) teacher observation and rating, (3) appraisal of student writing. All these means were used in evaluating all the skills, in addition to paper and pencil tests in the external skills.¹⁰ It was found that on the whole the class was making satisfactory progress. My Weekly Reader tests also indicated this. The results of the Steck and Iowa subtests are somewhat contradictory, however. The results of these tests will be discussed as each external skill is considered.

Alphabetization was introduced during the unit on Knoxville. A discussion of how to find your way to a doctor's office was under way. Some mentioned the telephone directory. This seemed difficult for slow pupils to do, so the teacher suggested that they should pretend that they knew the name of the office building in which the doctor had his office. A sample of the wall directory on the main floor of office buildings was put on the board. After talking about this and locating some names, the use of the telephone directory was discussed and the importance of skill of this nature was noted. The children readily saw that the skill could not be developed without specific practice. They began simply by rearranging words that all began with different letters. Then, more complicated word arrangements were used. After much work of this type had been done, it seemed that the children were ready for drill work in dictionary skills.

¹⁰Ibid., p. 126.

Observation of the class from day to day showed that the children understood the work and teacher made paper and pencil tests also indicated the same. However, the Iowa subtest on alphabetization only showed an average gain of three months (see Table V, page 74). The average for the first test was fourth grade, ninth month, and the average for the second fifth grade, second month. Twelve children retrogressed, one as much as three grades, five months. The only explanation for this acute retrogression is that the child must have guessed on the first test. The most progress made by any individual was from fourth grade fifth month to ninth grade, a gain of four grades five months.

This subtest is made up of twenty items. Fifteen of these are to select from four given words the one which would appear first in an alphabetical list. The last five items are devoted to use of guide words in finding the page number on which a given word would appear. A list of five page numbers with corresponding guide words is presented. Each item directs the child to find the page number on which a given word would appear. An analysis of errors shows slightly more errors made for the first part of the subtest, proportionally. This may be due to the fact that a great deal of drill was given to the kind of skill required in the last part, whereas little attention was given to the other skill throughout the year, as it did not function naturally in the daily work.

The Stack test had only two subtests, critical thinking and study skills. The writer was able, in some instances, where questions

TABLE V

SCORES DERIVED FROM FIRST AND SECOND ADMINISTRATION
OF IOWA SUBTEST, ALPHABETIZATION

Name (fictitious)	1st Score	2nd Score	Gain
Joe	45	90	45
Freda	86	86	0
Molly	78	80	2
J. D.	51	78	27
Reece	48	70	22
Mary Ann	78	70	-8
Geroldine	56	63	7
Ladd	47	63	16
Julia	51	56	5
James	32	56	24
Ernestine	48	56	8
Lucile	43	53	10
Barbara	86	51	-35
Dan	66	51	-15
Barton	56	51	-5
Sue	45	51	6
Rebecca	25	48	23
J. T.	72	48	-24
Robert	43	48	5
Ben	48	45	-3
Panay	39	45	6
Boyd	-	43	-
Mary	35	43	8
Elizabeth	45	39	-6
Penny	37	38	1
Pan	45	38	-7
Gene	48	38	-10
Dillard	48	43	-5
J. C.	26	33	7
B. W.	42	29	-13
Sam	25	22	-3
Average	49	52	3

dealing with the same skill were grouped together, to make up subtest scores. One point was allowed for each question. Alphabetization was not one of these skills.

Dictionary Usage. This work first proceeded from the use of the "little dictionary" in the back of the reading text. The following books were used: Times and Places, Distant Doorways, Let's Look Around, Today and Tomorrow, Streets and Roads.¹¹

Throughout the year children were instructed in the use of guide words in locating words in the dictionary. Later they used the school dictionary to locate words that they could not find in the "little dictionary." A sample of the drill type exercise that was given to the children will be found in Appendix F. This skill was tested under alphabetization in the Iowa test.

When a child did not know the meaning of a word as it appeared in the assignment or other reading material, he was encouraged to look for the meaning in the dictionary. Often the child had to have help in selecting the correct meaning. A number of exercises were given in selecting the base word for words ending in "ing," "ed," and "est." It was made sure that the children understood the necessity of recognizing

¹¹Gray, William S., Times and Places (New York: Scott, Foresman and Company, 1947), p. 447.

Smith, Mila B., and Boyne, Stephen F., Distant Doorways (New York: Silver Burdett Company, 1940), p. 480.

Gates, Arthur I., Let's Look Around (New York: Macmillan Company, 1940), p. 408.

Hildreth, Gertrude, Today and Tomorrow (Chicago: John C. Winston Company, 1948), p. 375.

Gray, William S., Streets and Roads (New York: Scott Foresman and Company, 1941), p. 319.

base words in looking for words in a dictionary. By spring the better pupils automatically reached for a dictionary when they needed it. The poorer pupils never did so unless specifically instructed to do so. Occasionally, when an assignment was written on the board a word was purposely used of which the children would probably not know the meaning. Here, the better pupils learned that the teacher would not explain the word, but would direct them to the dictionary. Poorer pupils often brought the dictionary to the teacher for help; other times they just asked the children who had used the dictionary.

During the time Egypt was being studied one of the better pupils brought a dictionary from home to copy pictures of the various gods on a big piece of paper which she was using to illustrate her report. In reading she had come across a name she could not pronounce and in looking up the word, also found a picture. This gave her the idea that other names might have other pictures.

A study of the long and short vowels was made, but few children learned to use this skill in pronouncing words. Bessie Stillman recommends that children even in the fifth grade do not attempt to use the dictionary for pronunciation--only for the spelling and meaning.¹² Some work was done, however, in classes where the group was small and it was thought that all individuals would profit from the experience.

One day when Elizabeth was reading her report on religions in India, she attempted to pronounce Jain just as it is spelled and ended

¹²Stillman, Bessie, Training Children to Study (New York: D. C. Heath and Company, 1928), p. 220.

lately with "or something like that." Freda promptly said, "The dictionary says it is Jin." There were a few other occasions where children demonstrated that they had been able to pronounce words in the dictionary independently.

The children showed by facial expressions and remarks that they did not enjoy the use of the dictionary. However, the brighter pupils showed through use that they thought it was necessary.

The Iowa subtest dealing with dictionary use administered in the fall and spring showed an average gain of three months. For scores on this subtest, see Table VI on the following page. In this test there were nine retrogressions. The most lost was two grades five months by one of the better students. The other retrogressions were among the middle to poor pupils. The highest grade made was at the eighth grade level with no progress made from fall to spring. These low scores may be due to the fact that the purposes of the teacher and those of the test writers were not quite the same. Five of nineteen items were devoted to pronunciation and two to parts of speech. Neither of these were stressed by the writer. Four items were devoted to the correct spelling of words. This too had not had a major emphasis.

The Steck test was not so arranged that a score could be determined from it on this skill.

From these tests results it appears that teaching for dictionary usage was weak. However, observation has shown that many of the children were able to use the dictionary sufficiently well to fulfill their individual needs. This was the primary aim of instruction.

TABLE VI

SCORES DERIVED FROM FIRST AND SECOND ADMINISTRATION
OF THE IOWA SUBTEST, DICTIONARY USAGE

Name (fictitious)	1st test	2nd test	Gain
J. E.	80	80	0
Freda	66	80	14
Reece	61	68	7
Julia	66	66	0
Joe	48	66	18
Geroldine	61	60	-1
Mary Ann	61	60	-1
Barbara	53	48	-5
Dan	48	48	0
Barton	38	48	10
Boyd	-	49	-
Gene	43	45	2
Dillard	48	45	-3
Pansy	20	43	23
Rebecca	20	43	23
Ladd	66	41	-25
J. T.	20	41	21
B. W.	38	41	3
Robert	33	41	8
Ben	33	41	8
Mary	27	38	11
Elizabeth	27	38	11
Molly	33	37	4
James	27	37	10
Ernestine	33	33	0
Sam	33	33	0
Lucile	43	32	-11
Penny	33	28	-5
Sue	20	27	7
J. C.	66	24	-42
Pan	27	20	-7
Average	42	45	3

Use of Index. When examining a text for the first time one period was given to use of the table of contents and index. Thereafter, they were referred to as the occasion demanded. The text used in Health was particularly examined in this way as the book was not organized in a manner that was practical to this classroom. Almost any time the text was used, the index had to be referred to. In their reference work the use of this skill occurred in a very natural way. Very few formal exercises were given to aid this skill. It appears that it is best to eliminate artificial situations whenever possible.

There were four questions on the use of index in the Steck subtest making a possible score of four in this particular skill. For the Steck scores on this skill, see Table VII on the following page. The spring test showed that two made no progress, twelve retrogressed and the average score showed one point gain. The highest gain was four points. Examination showed that the retrogressions were among the middle to poor students with a definite leaning toward the poor students. The writer concludes, from observation of actual practice, that the first scores were obtained through guessing and that the second score was approximately near the actual deserved score.

The Iowa subtest, however, (see Table VIII, page 81) agrees somewhat with the Steck subtest in that there are twelve retrogressions, although these are not in every case the same twelve pupils, but rather the range is from the middle to the better pupils. The average gain in this subtest was two months.

TABLE VII

SCORES DERIVED FROM FIRST AND SECOND ADMINISTRATION
OF STECK SUBTEST, USE OF INDEX

Name (fictitious)	1st test	2nd test	Gain
Joe	0	4	4
J. D.	0	4	4
Ladd	1	4	3
Dan	0	4	4
Barbara	1	4	3
Geroldine	0	3	3
Molly	1	3	2
Elizabeth	2	3	1
Julia	0	2	2
Mary Ann	1	2	1
Ben	0	2	2
Freda	0	2	2
James	4	2	-2
B. W.	1	2	1
Sam	3	2	-1
Rebecca	4	2	-2
Barton	1	2	1
Ernestine	2	2	0
Mary	0	2	2
Gene	1	1	0
Lucile	3	1	-2
Penny	4	1	-3
Robert	3	1	-2
Pansy	3	1	-2
Pan	2	1	-1
J. C.	4	0	-4
Sue	2	0	-2
J. T.	3	-	-
Boyd	0	3	-
Reece	-	1	-
Average	1	2	1

TABLE VIII

SCORES DERIVED FROM FIRST AND SECOND ADMINISTRATION
OF IOWA SUBTEST, USE OF INDEX

Name (fictitious)	1st test	2nd test	Gain
Joe	64	88	24
J. D.	43	64	21
Dan	64	64	0
Elizabeth	38	64	26
Molly	76	63	-13
Ladd	64	56	-8
Ben	38	56	18
Gene	48	56	8
Freda	48	55	7
Reece	48	54	6
Geroldine	88	49	-39
Robert	38	49	11
B. W.	48	49	1
Rebecca	34	48	14
Darton	64	48	-16
Barbara	43	48	5
Julia	55	48	-7
Mary Ann	48	47	-1
Pansy	43	43	0
Boyd	-	42	-
J. T.	38	42	-6
Penny	55	39	16
Lucile	24	38	-16
Mary	24	38	20
Sam	18	38	20
Ernestine	38	34	-4
Sue	38	34	-4
James	55	33	-22
Pan	38	30	-8
Dillard	18	28	10
J. C.	13	17	4
Average	45	47	2

In opposition to the results of these tests, actual school room use, as observed by the writer, shows considerable progress in the skill of index use.

Donald D. Durrell recommends specific exercises in the use of the index. He suggests that several topics be listed on the board with instructions for the child to either copy the topics and underline the key word or words one should use to locate information, or to simply copy only the key words.¹³ It may have been better if such drill had been utilized. In actual practice when children worked independently, they used two topics primarily. This was in social studies and consisted in the name of the country and the name of the committee on which the child worked. For instance "Egypt" and "shelter" or "Nile" and "clothing." Therefore, for their purposes they were not greatly handicapped.

Use of Reference. The real use of reference material began with the unit on Egypt. As stated before, many books on specific subjects were in the room at all times. Before a new unit was begun, it was arranged to have at least thirty books on that subject. These books were on varying reading ability levels involving many different types. A few had no index so that scanning was necessary in order to locate appropriate material. Children volunteered to work on certain committees in reporting. With this unit the titles were food, clothing, shelter, transportation and communication, occupation, and ancient

¹³Durrell, Donald D., Improvement of Basic Reading Abilities (New York: World Book Company, 1940), p. 252.

religions and customs. About ten days was allowed to gather material for these reports.

Donald Durrell states:

Long time assignments are designed to offset the usual shallowness and particularly to stimulate superior pupils. . . . The long time assignment is of greatest value when it parallels work in geography, history and science, and other content subjects. . . . Assignments should be two or three weeks in advance of reporting.¹⁴

A period was set aside for each committee to make reports. These were not real committees in the sense that they worked together and pooled their findings in one report. Often children did work together but each wrote his own report. At the end of each report there was a bibliography which consisted of the name of the books and the page numbers that were read. This information had been kept in a notebook as the reading progressed. Though there were no encyclopedias in the class library, a number of the children had them in their homes and often shared them with their less fortunate classmates. The fewest number of books referred to was four. Often there were as many as ten or twelve. These books were taken from the school library, homes, and the neighborhood library. For example of a child's work, see Appendix G.

The score for reference use could not be determined from the Steck test.

The Iowa subtest showed the greatest average gain in this skill. This gain was ten months. (See Table IX, page 84.) The greatest gain

¹⁴Ibid., p. 78.

TABLE IX

SCORES DERIVED FROM FIRST AND SECOND ADMINISTRATION
OF IOWA SUBTEST, USE OF REFERENCE

Name (fictitious)	1st test	2nd test	Gain
Joe	47	97	50
Julia	54	97	43
J. D.	68	85	17
Barbara	50	85	35
Geroldine	50	68	18
Reece	62	58	-4
Ladd	37	58	21
Mary Ann	54	58	4
Freda	47	54	7
Ernestine	47	54	7
Molly	37	52	15
Boyd	-	52	-
J. C.	37	50	13
Ben	37	48	11
Mary	27	47	20
Barton	37	47	10
B. W.	54	44	-10
Gene	42	44	2
Millard	54	41	-13
Pan	37	44	7
Pansy	42	42	0
Rebecca	27	42	15
Penny	37	41	4
J. T.	27	41	14
Robert	42	41	-1
Elizabeth	50	37	-13
Sue	11	37	26
Dan	47	37	-10
James	42	34	-8
Sam	37	31	-6
Average	42	52	10

was from fourth grade, seventh month, to ninth grade, seventh month. This child made consistent gain and also the highest total score at the end of the year though he was not the highest in the fall test. The average score in the fall was fourth grade, two months and the average score in the spring was fifth grade, second month. Observation of actual work being done would make the writer agree that the test score in general, except for the retrogressions. It would seem that the best teaching was directed toward this skill. Also the fact that the skill was called for in a natural situation and was a natural outgrowth of elected work seems significant. Hypothesis C states: "Study skills can be developed as wholes, rather than in isolated parts, used in the normal development of class procedures rather than in artificial situations." (See page 34.)

Map Reading. Map study began in the fall with the unit on Knoxville. A map of the city was secured. The portion that our school served was cast on the wall by means of the opaque projector. A large three-foot by four-foot piece of brown paper had been tacked to the wall. On this all lines were quickly traced with black crayons. Later all streets were labeled and each child located the place where he lived. The school, churches, and shopping area were marked. Such terms as map, key and directions of the compass were easily learned through actual experience with them.

As each country was studied in social studies, a map of that country was secured sometimes from the teacher's file and sometimes from the books brought in by the children. These were always cast on

the wall in large proportions, usually three feet by seven feet. When the map was complicated in line, the writer found it best to keep three or four children after school and let them draw in the main outline. Throughout the following days the cities and other items were entered. Often these maps were illustrated and done in color. The map of India was particularly interesting. Although the textbook material was meager, the children learned much about India in general. They read a great deal in order to find out what representative facts to portray in the map. Some of the items illustrated were the Taj Mahal, Temples at Benares, jute workers, snake charmer, Bengal tiger and jungle scene, river boats, elephants and mahouts. A relief map was also made on three-foot by five-foot paper. The relief was formed by using starch and newspaper. This was an excellent opportunity to illustrate mountains, plains, and plateaus. The desert was simply painted brown. All were labeled in white paint after the entire map had been painted in appropriate colors.

Following is an illustration of how facts are imprinted on a child's mind when connected with an activity of this kind: in forming the Himalaya Mountains, Ben commented that we must be sure to put in twenty-five humps for mountains. When asked why the specific number, he said, "The Second Book of Marvels says there are twenty-five major peaks." He was told that even that much detail could not be included in a map of this size, but was commended for doing such careful reading. A products map was also made for India. Each product was lettered in black crayon. Lines of appropriate color radiated out from these words.

The side of the crayon was used rather than the point. In this way there was overlapping of colors, showing that rice did not grow up to a given line and wheat began there.

Occasionally fictitious maps were drawn on the board. Such questions were asked as: What towns are connected by railroad? Between what towns do mountains lie? What city is directly north of a lake?

In addition to the pupil-made maps there was a fairly good map of the world and rather old maps of countries in each continent. An excellent globe was loaned by one of the children for use throughout the year. The globe and these maps were referred to often. When children were not otherwise occupied, they gathered in a group of no more than four to discuss these maps. This was particularly true at the time a new country was first being studied.

Although both the Steck and Iowa tests did not verify the fact, it is the opinion of the writer through observation and conversation with children and parents that tremendous progress was made in this skill--map study.

Map reading is a composite skill. The Iowa test manual gives an excellent analysis of the lesser skills. They are (1) ability to visualize the represented area in its natural plane and to read directions correctly, (2) recognizing and interpreting standard map symbols, (c) identifying and visualizing symbols with the use of a key, (4) ability to apply physical facts to map situations.¹⁵

¹⁵Spitzer, J. F., and Horn, Ernest, Examiner's Manual for Work-Study Skills (New York: Houghton Mifflin Company, 1945), p. 16.

Analyzing the Iowa subtest on map reading shows an average gain of eight months. (See Table X.) However, there were nine retrogressions among the middle and poorer students. In the estimation of the writer the highest score of each of these pupils represents, in most cases, his actual score. Observation showed the majority to be better than the lower scores and in most instances as good as the best scores.

The greatest individual gain was four grades, six months, from fourth grade second month to eighth grade eighth month.

The Steck subtest asked six map questions making a possible score of six points. This test, when separated from the rest of the subtest, showed no average gain. (See Table XI, page 90.) There were eleven retrogressions and here again, they were among the middle to poor students. Five of the eleven were the same five who retrogressed in the Iowa subtest.

George Howe made a study of fourth, fifth, and sixth grade children's ability to read maps and concluded that children's concepts in map reading were inexact and obscure.¹⁶

Critical Thinking. Through problem solving techniques and skills that will be discussed in Chapter IV, effort was made to increase power in critical thinking. The necessity of thoughtful consideration of all the materials with which they come into contact was always impressed upon the children. They were urged to report a fact only after they had evaluated it carefully. The fact or opinion

¹⁶Howe, George F., "A Study of the Ability of Elementary School Pupils to Read Maps," *The Teaching of Geography* (Bloomington, Illinois: Public Schools Publishing Company, 1933), p. 486.

TABLE X

SCORES DERIVED FROM FIRST AND SECOND ADMINISTRATION
OF IOWA SUBTEST, MAP READING

Name (fictitious)	1st test	2nd test	Gain
Geroldine	42	88	46
Freda	47	65	18
Boyd	-	78	-
J. D.	65	75	10
Dan	33	75	42
Julia	51	65	14
Ladd	58	62	4
Joe	30	58	28
B. W.	39	55	16
Ben	54	55	1
Barbara	39	51	12
Barton	24	51	27
Lucile	39	47	8
Sue	37	45	8
Mary Ann	37	44	7
Molly	42	44	2
Robert	37	44	7
Ernestine	47	42	-5
Pansy	27	42	15
Mary	27	42	15
J. T.	20	37	17
Penny	33	34	1
Elizabeth	37	33	-4
Reece	42	30	-12
Gene	42	27	-15
Rebecca	47	27	-20
James	20	27	7
Pan	33	27	-6
J. C.	42	24	-18
Dillard	30	25	-5
Sam	37	20	-17
Average	38	46	8

TABLE XI

SCORES DERIVED FROM FIRST AND SECOND ADMINISTRATION
OF STECK SUBTEST, MAP READING

Name (fictitious)	1st test	2nd test	Gain
Julia	2	6	4
Mary Ann	2	6	4
Elizabeth	6	6	0
Molly	2	5	3
Geroldine	3	5	2
Pan	5	5	0
Joe	0	4	4
J. D.	1	4	3
Ladd	3	4	1
Dan	2	4	2
Lucile	3	4	1
Freda	3	4	1
Robert	0	4	4
B. W.	6	4	-2
Sam	3	4	1
Rebecca	5	4	-1
J. C.	5	3	-2
Ernestine	6	3	-3
James	4	3	-1
Boyd	-	3	-
Reece	-	3	-
Barbara	5	2	-3
Pansy	5	2	-3
Dillard	3	2	-1
Mary	0	1	1
Barton	6	1	-5
Gene	0	1	1
Sue	0	1	1
Penny	5	1	-4
Ben	3	0	-3
J. T.	0	-	-
Average	3	3	0

question was asked over and over of them. One mother commenting on skills that children will continue to use in other grades, even though little emphasis is put upon them, said, "She has said several times 'Mrs. Merritt says you should be sure what is a fact and what is an opinion.' I think, in these times this is so important."

Several examples of critical thinking will here be cited.

When Mr. Johnson talked to the class about birds, he mentioned that other birds could not tell the difference in their own eggs and the cow bird's eggs.¹⁷ Later the teacher mentioned this in discussing the habits of birds. A few days later Joe came to the teacher's desk with a book that he had brought from home. He said, "I don't know if you are wrong or this book." The book showed a picture of a yellow finch's nest. She had laid three others, one above the other and in each nest there were her own eggs and the cow bird's egg. At last, not being able to get away from the cow bird, she had flown away leaving all four nests. When the teacher commented that it certainly looked like evidence that she was wrong, Joe said politely, "Of course, this is a very old book. They may have found out some things about particular birds since this was published."

One day when Geroldine was reading her report she said, "The book I read said the very poor were weighted down with silver, but that doesn't make sense, does it?" When the class agreed that it did not and one child suggested that she must have misread the statement, she

¹⁷Mr. William Johnson came to talk to the children on birds. He is a member of a bird club. He brought a case of stuffed birds and left them with us for several weeks.

went to the book to have a second look. She found, after a long search, that she had miscopied the statement in her notebook.

At the time bees were being studied, Joe commented he was sure he had seen a queen bumble bee gathering pollen that morning for she was so large. Later in the day when the children were reading about bumble bees, Ladd said,

Joe must have been wrong because the book said that the queen was the only one to live through the winter. In the spring she had to gather food for her babies but when they grew up and were able to do the work that her own work was only to lay eggs. As this was fall it would not have been a queen out gathering pollen.

So observant and anxious was Joe to apply principles learned in one situation to other situations that after taking the Steck test on critical thinking where there was a choice of true, probably true, false, probably false, or can't tell from material given, he applied the choice where it was not given. On the Iowa test in the use of index, he could not locate the information it asked for. There was a blank where the child was to write in a page number. There was no room for words, but Joe wrote down the side of the test booklet, "Can't tell from information given."

The Iowa test gave no subtest on critical thinking. However, the Steck test did and it showed an average gain of eight points. (See Table XII.) Six of the twenty-eight children who took both the fall and spring tests retrogressed. Of these six, four were the poorer students, one in the middle group, and one of the better students.

My Weekly Reader test provided some basis for critical thinking as has been stated before. Table IV indicates considerable progress in

TABLE XII

SCORES DERIVED FROM FIRST AND SECOND ADMINISTRATION
OF STECK SUBTEST, CRITICAL THINKING

Name (fictitious)	1st test	2nd test	Gain
Joe	33	34	1
Julia	15	31	16
Ladd	19	29	10
Boyd	-	26	-
Geroldine	13	24	11
Freda	1	22	21
J. D.	23	20	-3
Mary Ann	1	20	19
Reece	-	19	-
Rebecca	0	19	19
Barbara	8	16	8
Ernestine	0	15	15
Ben	4	15	11
Dan	2	13	11
Lucile	10	12	2
Molly	0	11	11
Barton	0	7	7
Penny	6	5	-1
Sue	2	5	3
Robert	3	5	2
Gene	9	4	-5
Sam	2	4	2
B. W.	0	4	4
J. C.	5	2	-3
Elizabeth	0	2	2
James	1	1	0
J. T.	0	-	-
Mary	0	0	0
Pan	0	0	0
Average	5	13	8

the composite reading skills which include interpreting facts, vocabulary from context and selecting story titles.

Observation and test results show that progress was made by the class as a whole in critical thinking.

Line and Bar Graphs. Methods used in teaching children to interpret line and bar graphs will be discussed (under Hypothesis F.c., page 119) in Chapter IV.

The Iowa test gave no subtest of this skill. (See Table XIII.) Steck devoted four questions to it with a possible four points. Of the twenty-eight children who took both tests, eight retrogressed, five remained stationary. Two made a gain of four points, and six made a gain of three points. The average gain was one point.

Katherine Thomas experimented with 355 children of Grades IV through VII to determine their ability to interpret graphs. Each grade she divided into slow, average, and superior groups. She found that reading the circle graph, pictorial graph, and two-dimension diagram were easier than reading the line graph. She found only eight in the seventh grade who were able to read from the line graph.

She concluded: (in relation to this study) Slow fourth grade children understood little of the meaning of graphs; superior fourth grade children understand the meaning of simple graphs and can read simple facts from them. Picture graphs, two-dimension diagrams, and

TABLE XIII

SCORES DERIVED FROM FIRST AND SECOND ADMINISTRATION
OF STECK SUBTEST, LINE AND BAR GRAPHS

Possible score - four points			
Name (fictitious)	1st test	2nd test	Gain
Joe	1	4	3
Ladd	1	4	3
Geroldine	0	4	4
J. D.	0	4	4
Ernestine	2	4	2
Elizabeth	4	4	0
E. W.	1	4	3
Gene	2	4	2
Barbara	1	4	3
Dan	1	4	3
Reece	-	4	-
Boyd	-	4	-
Freda	2	3	1
Barton	3	3	0
Rebecca	3	3	0
Robert	3	3	0
Molly	0	3	3
Mary Ann	0	3	3
Lucile	0	3	3
Ben	2	3	1
J. C.	4	3	-1
Julia	1	3	2
J. T.	3	-	-
Pansy	4	2	-2
James	1	1	0
Sue	3	2	-1
Dillard	4	0	-4
Sam	2	0	-2
Mary	2	0	-2
Average	1	2	1

circle graphs are easiest of all graphs for all pupils to read. Line graphs are the most difficult.¹⁸

Summary

Test results show the greatest average gain is in use of reference. Though the Steck test showed no gain on map reading, the Iowa test, with over twice as many test items, showed near normal average gain of eight months. The Steck test showed an average gain of eight points on critical thinking. Graph reading, dictionary use and alphabetization resulted in low scores.

Allowing for the handicap of having the teacher absent for nine weeks and assuming that retrogressions were due to guessing, one may conclude that tests will reveal strengths and weaknesses of teaching methods.

The Development of Study Skills as Wholes

The hypothesis to be discussed in this section is that study skills can be developed as wholes, rather than in isolated parts; used in the normal development of class procedures, rather than in artificial situations.

Of the skills taught, both those for which there are adequate tests and those for which there are no test, all were developed in the

¹⁸Thomas, Katherine Colvin, "Ability to Children to Interpret Graphs," The Teaching of Geography (Bloomington, Illinois: Public Schools Publishing Company, 1933), p. 492.

normal classroom procedure without any artificial situations. Indeed, some of the low test scores may be due to the fact that the writer has so dreaded meaningless drill that sufficient drill was not provided to make the skill carry over into unfamiliar artificial situations such as the tests. In most situations the writer was satisfied so long as the skill was functioning in the immediate situation.

Except for the skill of alphabetical arrangement, each skill was presented at the time it was really needed. The use of the dictionary was taught when the vocabulary of reading material was of such content that the children were not getting the full story without knowing the meaning of words. Vocabulary study was introduced early in the year when class discussion was at a standstill because many children did not remember what terms like shelter, occupation, and transportation meant though their meanings had been discussed previously. Map making and map reading were presented as a natural means to an end. The end was to understand where people in the class lived in relation to the school; this resulted in the making of a local map. Later maps served to help understand why other countries have different ways of providing food, clothing and shelter from the way we are provided with them. In this way skills were intricately connected with purpose. Purpose puts meaning into all that is done. As Bessie Stillman so ably put it: "There are many broad questions to be faced in teaching children to

study; for example, . . . the sensing of value to the self of what one is hearing or reading, etc."¹⁹

Mary Kelty speaks of the large units of work as a possibility of caring for so many interests and individual capacities. She says,

The discussion so far has been centered about development of comprehension largely through direct experience and through reading from the printed page. The development of skills however is a parallel case. There is ample opportunity to develop skills in interpreting and making maps, diagrams, cartoons, and in the use of books (index, table of contents, topic headings, reference).²⁰

Morse and McCune say, "Study skills should likewise be developed in wholes, rather than in isolated parts, and may be learned most effectively as they are to be used rather than through artificial situations."²¹

Summary

Since all skills that were taught in this study were taught as their need was made apparent in natural situations, this hypothesis is valid to the extent of progress that the children made in the use of these skills. By the Iowa test, that extent is an average gain of six months. By the Steck test it is the average gain of eighteen points. By My Weekly Reader test the average gain is eight months. Parents feel that the gain of their children was great. The teacher judges from test results, diary record, anecdotal records, and observation,

¹⁹Stillman, Bessie, Training Children to Study, Introduction xviii (New York: D. C. Heath and Company, 1928).

²⁰Kelty, Mary, "Adjustment of the Materials of the Social Studies to General Mental Development of Children of the Middle Grades," Educational Methods XVI (New York: Bureau of Publications Teachers College, December 1936), pp. 113-120.

²¹Morse, H. T., and McCune, G. H., Selected Items for Testing Study Skills (Washington, D. C.: N. E. A., 1940), p. 12.

that while progress was not as great as she had hoped for, it was as great as could reasonably be expected under the limitations of her prolonged absence and her limited ability in teaching in this relatively unexplored field.

Problem Solving Techniques and Study Skills

The hypothesis to be discussed in this section is that problem solving techniques will facilitate the acquisition of study skills.

Early in the year the teacher discussed with the children the importance of a clearly defined purpose in all work. To illustrate this fact they were asked to suppose that their mother sent them to town one day. If on their return she should ask them what they had brought her, what would they think? They laughed at the idea and replied that the answer would be nothing, unless she told them what she wanted. The teacher then asked them what would they say, if before they went, she told them to buy a spool of thread. A discussion followed concerning the satisfaction one gets when selecting something one really wants very much and for a long time, as compared with the aimless spending of a dime here, a nickel there. From this the children were led to understand the importance of understanding purpose in any undertaking, both one's own purpose and the purpose of an author, a parent or teacher. When the unit on Knoxville was begun, it was with great effort that the teacher directed the children to define their purposes. First, they were helped to frame their purposes in studying social studies. They were inclined to say they wanted to learn about

other people. It took a great deal of discussion and actual suggestion on the part of the teacher. Practically a week was taken up in wording the aims of the year and the aims of the unit. It must be admitted that instead of clarifying things that some children were more confused than ever for several weeks, as this was so far removed from their previous approaches to study. For the result of this effort, see Appendix H.

Of problems, Linda B. Earhart says, "If the problem is to have interest and is to be a motive power to the child, it must grow out of his own experience, some situation in relation to himself, otherwise no genuine thinking will result."²²

Again she says, "But if the teacher can so direct the experience of his pupils that the problem arises in their own consciousness of need, then it is felt to be theirs and the situation is most favorable to thinking."²³

This first unit did not arise in the children's consciousness of need. The teacher instigated it with the hope that it would create need for further study. It did.

Julius Boraas says,

The educative value of solving a problem in the ordinary subjects does not consist primarily in finding the answer, but rather in the development of the following types of insights and skills; (a) ability to read and understand problems, (b) the habit of insisting upon knowing very definitely what is to be accomplished, (c) skill in planning a direct

²²Earhart, Linda B., Teaching Children to Study (New York: Houghton Mifflin Company, 1909), p. 18.

²³Ibid., p. 19.

attack, (d) the habit of accuracy and verification in all work, (e) development of ingenuity in meeting original problems, and (f) ability to review a solution or a series of solutions and to generalize the experience gained.

The educative value of problems are not only specific but also individual in nature. --- This means that problem-solving, like spelling and language work, must consist largely in individual training.²⁴

Frederick Marcham says,

The phrase 'solving a social problem' has here two meanings. When we speak about 'solving' we should include (1) both the actual finding and following of a way out of a social problem, and (2) the mere considering or study of such a problem. School life provides opportunities for an active solution of problems, and this finding and following of a course of action must take first place in any consideration of the relationship of critical thinking to the educational program.²⁵

Having defined the purpose both for the year's work and for the unit at hand, discussion followed as to means of solving the problem. Books were the first suggestion. Field trips, resource people, observation and yellow sheets of the telephone directory were discussed. Children elected to form committees to resolve the key questions. Along with the finding of means to satisfy the problems children made suggestions as to the answers they thought they would find. As stated before, this unit was dissipated and interrupted by the teacher's injury. However, though field trips were not made and resource people were only contacted through individual home discussions and reported to

²⁴Borjas, Julius, Teaching to Think (New York: Macmillan Company, 1922), p. 172.

²⁵Marcham, Frederick, "Teaching Critical Thinking in the Social Studies" (Washington, D. C.: National Council for Social Studies, 1942), p. 2.

the group, the children finally organized their findings through a great deal of class discussion and group thinking. For the result of their conclusions, see Appendix I.

Problem solving techniques were more readily utilized on other large units on foreign countries. The children found it less difficult to organize their purposes, and state their conclusion in summary form. See Appendix H for an example of how the question at the beginning of a report formed a basis for the summary conclusion at the close. In seeking the answers for their questions the children used all the external skills in a most natural way. In selecting material pertinent to the problem they exercised critical power. Also when the reports were given in class a few minutes were set aside after each report to evaluate its content, organization and delivery by the class. This also called for critical ability.

Problem approach was also used in science units. As an example of how it functioned, see pages 103 and 105.

Summary

It requires critical thinking and the power or organization to define a problem. It likewise required these skills to seek a means of solving the problem. In gathering information children made use of maps, dictionary, index, and reference material. In selecting pertinent material they exercised critical ability. In writing and giving their reports they exercised written and oral expression. Thus problem solving techniques facilitated the use of study skills.

The Universality of Social Studies Study Skills

The hypothesis to be discussed in this section is that there are some study skills that are common to social studies and other subjects such as:

1. Problem solving
2. Selecting the important idea
3. Organization of ideas
4. Others

T. Bentley Edwards made an effort to construct a test in natural science for high school students with the objective that they would be easy to give and easy to score.

It is related to the writer's study in that he assumed "that thinking skills acquired with the use of one kind of subject matter may be applied in other subject-matter areas is in line with modern psychological concepts regarding transfer of training." He then goes on to back up his assumption by quoting Pedro Orata as saying "It is safe to conclude that from the standpoint of the teacher and the school in general, the solution of the problem of transfer of training is to train for transfer." This latter quotation suggests to the writer the importance of doing just this in order to carry out this hypothesis.²⁶

Problem solving techniques which are a part of critical thinking were used in both science and health. A page from the teacher's diary will illustrate this fact, as follows.

²⁶Bentley, Edward T., "Measurement of Some Aspects of Critical Thinking," Journal of Experimental Education (Madison, Wisconsin: Dunbar Publisher, March 1950), p. 263.

When the unit on the life of social insects, bees and ants, was taken up early in the fall, much the same procedure was followed as was afterward used for daily work in the social studies. Under the direct supervision of the teacher, the children took a hasty look through the entire unit (on the bee) as it was presented in the science text. They looked at the pictures, read the bold face type, read any captions under the pictures, looked for italics and then discussed the kind of information they thought they would need to learn about the bee. One child ventured the opinion that the author must have considered the ideas presented in bold face print and pictures as most important. With help the children put their ideas into questions. The teacher suggested that they think of what they already knew and try to answer their questions. All this was put on the board. Then the children began to read to verify the partial answers they had framed.

The next day the lesson was read silently. The children were directed to put down on paper what they thought was the most important idea on each page, paragraph or section, as directed by the teacher. This was difficult for them and the poorer students seemed utterly confused about the relative value of ideas. This kind of work went on for several days, followed by class discussion and the verification of their attempts. At the same time material was being brought in for opening exercise, pictures, an encyclopedia, an article in Life

magazine,²⁷ a wasp's nest. The child who brought the magazine shared it with a friend and together they made an oral report to the class.

After a great deal of discussion, the children found upon entering the room one morning that several yards of paper had been mounted on the board. Some of the children who had made a frieze the preceding year, asked if it had been put there for that purpose. When the teacher said that it had, they wanted to begin at once. It was suggested that they organize their ideas on the board so that the frieze would present to visitors the most important facts that they had learned about bees. This work went easily as they had been struggling with summarizing the text in their notebooks. The headings for panels were written on the board and pertinent facts were listed under each. The frieze was developed by the entire class working under chairmen, elected by the class, to direct the work of each panel. Most of the work was done during the day while the teacher was working with smaller groups in reading and remedial work in other fields. At times the work was pretty noisy, but after a while when the work had been under way for a few days the children settled down to quiet work. The panels were labeled as follows with pictures portraying the information listed under each.

Life Cycle of a Bee

egg	pupa	larva	adult
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²⁷Freund, Rudolph, "The Life of the Bee," Life (Chicago: Time Inc., August 11, 1952), pp. 62-69.

Kinds of Bees

Queen	Drone	Worker
Portrayed	Portrayed	Portrayed
large	fat	small

Life in the Hive

Picture was adapted from Life with some changes.²⁸ A movie that had been shown suggested some of the changes. It portrayed the queen bees fighting, work bees at work at their various tasks, bees hanging head down to have wax scraped from their sides, and the various kinds of cells.

Enemies of the Bee

This was also adapted from Life. There was a preying mantis, king bird, a bear, several kinds of insects, a mouse and bees from other hives.

Foods of the Bee

Pollen nectar bee bread royal jelly

Work of the Bees

Bees building the hive

Bees collecting nectar and pollen

Bees guarding the hive

²⁸Freund, Rudolph, "The Life of the Bee," Life (Chicago: Time Inc., August 11, 1952), pp. 62-69.

Bees Swarming

Bees hanging in a swarm from a tree. An inset showed how one bee fastened to the next.

This frieze was an excellent presentation of what a summary can be. After this there was never any question as to what the word meant and the entire class seemed to grasp the relative importance of facts.

This unit illustrates how many of the techniques of critical thinking, which involve stating the problem, hypotheication, collecting and weighing facts, summarizing and conclusions, can be utilized in units other than social studies.

Another example of critical thinking that occurred, developed from the wasp's nest that one of the children brought to morning exercise. The nest had been broken open and both eggs and pupa could be seen.

A discussion arose the next morning when the child reported that she poured water on the nest and it made the larva hatch out. Joe doubted that the water made them hatch out. He thought that it was probably the fact that the walls were so softened that with little effort the larva could force his way out, weak as it was. This good thinking gave the teacher an opportunity to discuss with the children how scientists look for cause and effect relationships and how they test hypotheses many many times before they say a thing is true. It was also discussed the place of the words "possibly" and "probably." And here began the oft used question which was to be repeated on many occasions till it almost became a slogan: "Is that a fact or an opinion?"

Summary

Illustrations have been given to show how problem solving techniques, use of book cues, selecting the main idea, and critical thinking can be utilized in science units.

Summary

By illustrations of methods used in the classroom the writer has attempted to show that:

1. specific teaching for study skills will result in improvement in the use of the skills,
2. testing has revealed strengths and weaknesses in teaching,
3. study skills can be developed in wholes,
4. problem solving techniques will facilitate the acquisition of skills,
5. and many of these skills are common to other subject matter fields as well as the social studies.

Results of Steck, Iowa, and My Weekly Reader tests and questionnaires for parents and children combined with the teacher's observations and anecdotal records to show results of specific teaching for study skills.

These same tests revealed strengths and weaknesses of methods as well as weaknesses of the tests themselves.

Illustrations from the teacher's diary demonstrated how skills could be developed as wholes and in natural situations.

Illustration from the teacher's diary also showed how study skills can be developed through problem solving techniques and how these same skills can be used in other subject matter fields.

CHAPTER IV

TEACHING SPECIFIC ASPECTS OF CRITICAL THINKING

This chapter will be devoted to evaluation of methods used in teaching for specific aspects of critical thinking. Very briefly these aspects are: skill in understanding printed materials, defining the problem, hypothecation, collecting data, evaluating data, organizing data, and drawing conclusions. Other materials and studies related to this hypothesis will also be discussed.

As an over-all position the writer said that some methods of teaching are better than others. Perhaps another way of stating it might be that these are good methods for the development of these aspects or skills.

Of the importance and effectiveness of good teaching methods Bessie Stillman says, "A skillful teacher has been called 'a genius of human engineering.' Training children means helping them to form habits in the control of their mental machinery so that at last they may become their own efficient engineers."¹

Also she says, "The teacher who really stimulates children to think can afford to be at peace with the world; other things will be added unto him."²

¹Stillman, Bessie, Training Children to Study (New York: D. C. Heath and Company, 1928), p. 241.

²Ibid., p. 15.

Understanding Printed Materials

The subhypothesis to be discussed in this section is that skill in understanding printed material will be strengthened by exercises in:

- a. giving captions to pictures on bulletin board, in books, and used in the opaque projector,
- b. making and interpreting maps,
- c. making and interpreting graphs,
- d. vocabulary study in connection with the unit of work being used at the time,
- e. use of My Weekly Reader,
- f. picking out important ideas in paragraph in test or other selected material.

Giving Captions to Pictures on Bulletin Board, in Books, and Used in Opaque Projector

In regard to children understanding pictures, Bessie Stillman says,

The very fact that the books of today are so profusely illustrated tends to blunt the children's perception. . . The child gets into the habit of glancing at a picture hurriedly, experiencing a momentary sense of pleasure, and passing on to the next without having learned anything definite from the first. Movies have been called the drug habit of the mind. To a certain extent, much of the illustrated material put before the modern child is open to the same condemnation unless the child is taught how to study.³

The writer certainly found this to be true. Early in the year she brought some fifty pictures, related to the topic being studied,

³Ibid., p. 45.

for the bulletin board and chalk rail. After a few days a class period was devoted to questioning the children about the material. All of the children had spent some time looking at the pictures for they were always free to move about the room unless they did it in a manner to disturb others. The scarcity of ideas the pictures had aroused in the children, or the haziness of those that were aroused was appalling. The importance of thinking about the material and making an effort to relate it to what they were studying was discussed. When the pictures were first put up, many noisy discussions were apt to disturb other work, so again the class agreed to limit any group of observers at any board to four in number. It was found that some discussion was helpful.

After this, at intervals, an oral quiz was conducted. At times pictures were displayed with the instruction to copy the number beside each picture, write a caption for each numbered picture, and lay the paper on the teacher's desk, some time during the day. The children were admonished to refrain from discussing the captions with each other. This was not always carried out, but the teacher felt that if it were not carried to excess, the children got the benefit nevertheless. The next day these captions were discussed in class in order to correct any false impressions. For a sample of such captions, see Appendix J.

At times children, who were working on the same committee for a written report, would volunteer to take charge of the bulletin board and write appropriate titles for individual pictures or groups of pictures. Pictures were brought from home and Lawson McGhee Library. Always there was a permanent file of pictures in the room. The pictures

were filed under appropriate headings in folders. It was the responsibility of the bulletin board chairman to see that the file was kept in order. The pictures were accessible to the children for group or individual use at all times. In frieze making it was indispensable. Interest in picture interpretation increased as the year's work progressed and at the end of the year it was evident that most of the children were getting full benefit of this skill. The discussions and quiz results brought this out.

Occasionally the teacher would ask on My Weekly Reader quiz, "Where have you heard of this before?" The children would recall having seen it on the bulletin board or that some child had brought a picture to opening exercise.

Another means of picture study used throughout the year was the opaque projector. This work began when pictures were brought from the library, put them under the machine and projected them on the screen with appropriate comments and explanations. This was a great help, particularly to the children who were poor readers. The teacher did this several times, and finding the children thoroughly interested, suggested that some child volunteer to make a picture lecture. Several volunteered and the three of the best students were chosen, supplied them with National Geographics, portraying life in Ancient Egypt, and suggested that they go out into the hall and practice their talks till they were certain they were ready to present the material to the class. This they willingly did, and even delved into the printed material in the articles. This was something that was not expected since it was

written in a style difficult for fourth grade children. The children worked several days reciting to each other before they were ready to present the pictures. A period was set aside each day for this work until all three children had made their picture lectures. It was accomplished with great satisfaction to the children, the class, and the teacher.

This work continued throughout the year. Pictures were from many sources. Pictures that were brought in for opening exercises were often kept for such a time, particularly if they were small and if there was a series of them such as in an encyclopedia. The slower pupils were inclined to comment on the obvious, but if they did, the brighter students were sure to comment on their observations and thus give the class the benefit of their discernment. Parents became quite interested in this phase of work and were always on the lookout for suitable material. Another advantage of this method is that everyone can make a contribution, each according to his own ability.

Other means of picture study were the film strip and the moving picture. Knoxville Schools have a large library of films and films are delivered twice a week to each school on order. Whenever it was possible to show a film on the country or subject being studied, this was done. In the case of the moving picture, before the film was shown, the teacher discussed with the class the kinds of things they were to look for. Often a brief synopsis of the story was given. The film was shown. The class was questioned about what they had seen and their attention was drawn to the points they had missed. At the close of the

film a test was given to both emphasize things they should have observed and as an effort to evaluate the benefits of the film. Such a test is given in Appendix K. This test was on the film entitled Farmers of India.⁴

The conclusion gained from observation, parents' comments, children's comments, and material, gained from pictures and incorporated within their written reports is that use of pictures and giving captions to them is one of the outstanding methods used in understanding printed materials.

Making and Interpreting Maps

This study skill has already been rather thoroughly covered in Chapter III. It may be analyzed as four lesser skills. (1) The ability to visualize the represented area in its natural plane and to read directions correctly was brought forcefully to attention of the children when the unit on Egypt was studied. Many of the children were of the opinion that the Nile began in the Mediterranean Sea and flowed "down" into Africa. There was a little section in their science book devoted to an explanation of the fact that "down" is toward the center of the earth and "up" is away from the center of the earth. There had been a class discussion on the subject but it took this incident to show the teacher how little it had really meant to many in the class. Once the children were led into a discussion of the flood season of the Nile caused by its tributaries to the south being in the rainy part of

⁴Farmers of India (New York: United Film Inc.), black and white, sound, 12 minutes.

Afrida, they began to understand the situation. The teacher called to their attention the unit on conservation which they had studied, and the film they had seen showing how rain fell into small streams at the top of a mountain or snow melted and ran into the streams. There had been an excellent diagram tracing the progress of water from small streams, into larger ones until it ran into the sea. To further illustrate, books were piled to represent mountains and it was shown how land could slope either way, north or south. When the relief map of India was made, it was left flat on the floor for a few weeks. By turning the map around both north and south, east and west, it was shown how the slope of the land affects a river's course. When China was studied, several children expressed surprise that some streams flowed down into China from the Himalya Mountains as well as into India. Here was another opportunity to illustrate the rule. Several children traced with their finger the courses of the three largest rivers from source to mouth. This visualizing the area was a difficult skill for children to acquire. There seems to be great merit in using many relief maps, both of countries and continents, for teaching the concepts involved.

(2) Recognizing and interpreting standard map symbols was begun early in the year. The terms "key" and "symbol" were added to the vocabulary list when the map was made of the school area. There was a symbol that represented the school, also a church. A stream crosses North Broadway and so the symbol entered was on the map. Other wall maps were studied and various other symbols noted. Each time a map was

made thereafter a key describing the symbols used was entered on the map. Colored maps were more easily understood. On two occasions My Weekly Reader gave maps of the places discussed in the paper. At these times the opportunity was taken to test the children on their ability to interpret the symbols used. It was found that very few children could visualize water areas on uncolored maps.

Edna McGuire makes suggestions as to activities in map reading for each of the elementary grades. She suggests that first grade children draw a play house on paper and step it off on the floor. Second grade children, she says, should draw a plan of the streets on the floor and mark houses in order. Third grade children should make a map of their school room using one inch to represent one foot. The fourth grade during the year should learn to (a) name and locate the continents and oceans, (b) recognize symbols of mountains, rivers, cities and political divisions, and (c) locate portions of the earth that are being studied.⁵

John Michaelis also suggests that "the use of maps must be related to children's backgrounds and experience, concepts and symbols must be developed gradually, and map-reading skills must be put to use in problem solving."⁶

⁵McGuire, Edna, "Social Studies Skills in the Elementary School," Social Education I (November 1937), pp. 569-574.

⁶Michaelis, John U., Social Studies for Children in a Democracy, (New York: Prentice-Hall Inc., 1950), p. 276.

By beginning with a simple map of the local area and progressing to more complicated maps the writer has attempted to follow the advice of John Michaelis. A child whose father works for the Tennessee Valley Authority brought a splendid though complicated map of the area served by the Tennessee Valley Authority during the study of Knoxville. To simplify the situation several of the best pupils were directed to trace the rivers and lake areas in blue crayon. A red crayon underlined the names of the dams and a purple crayon the names of familiar cities.

Map reading was among the greatest progress shown according to the Iowa test (see Table X). The writer attributes this success to the fact that the skill was the natural outgrowth of the school room situation, as John Michaelis says, "As with other activities, map making should be directly related to specific problems in the unit of work, not carried on as busywork or as something isolated from a study of major human activities."⁷ Through map making the children came gradually to understand the language of standard map symbols.

(3) Identifying and visualizing symbols with the use of a key was furthered by the children including a key with each map they made. Their geography text gave several maps and map exercises for this skill. On several occasions children brought maps from home. When a key was included, this gave them an opportunity to test their skill in interpretation. One map was placed under the opaque projector. It was

⁷Ibid., p. 278.

a map of Egypt with many symbols. The child who brought it enjoyed questioning the class on their use of this skill.

(4) Ability to apply physical facts to map situations was used a great deal in deductive reasoning when the children were trying to work out "big guesses" about the area to be studied. This form of hypothe- cation was interesting to the children. It functioned particularly well in the study of India and China. Their knowledge of the effect of temperature belts, mountains and streams helped them to surmise many facts about climate, occupation, food, clothing, and shelter.

From test results (ignoring the Steck test that indicated no progress) and observation, it is concluded that map making and map reading was a very satisfying experience for the children, interesting and completely functional in understanding printed materials.

Making and Interpreting Graphs

Line graphs were introduced the first week of school. The spelling workbooks had a framework already made with one block representing each word missed. Each Friday the children entered a dot in the appropriate square for the words missed on the weekly test. By connecting the dots a line graph was made. This was quite easy for the children to understand.

In addition, a child volunteered to make a bar graph, recording the number of perfect scores made each Friday. This graph was made on two-foot by three-foot tag board and mounted on the wall.

About October two children, with the help of the teacher, made a large three-foot by four-foot graph, recording vertically the temperature as it was registered each morning at nine o'clock.

After this was completed for a month, it was suggested that two children make a horizontal bar graph. The width of the yard stick was used to make the bars. The local newspaper recording of the high and low temperatures were entered on the same bar in blue and red crayon respectively. Every five degrees were marked with numbers, but a line was entered for each degree. The work was faithfully carried out through a month, even though the teacher was absent two weeks of the time.

The teacher-made test, as shown in Appendix I, indicated that the class, as a whole and as individuals, understood the process of graph reading. The scores ranged from 60 to 100. The average score was 90.

Other graphs were brought in from time to time, showing that the children understood the skill and were interested in it.

While a great deal of graphs do not seem to naturally fall into the material generally covered by the fourth grade, there seems no reason why large scale graphs should not be made as a class activity on several occasions through the year.

It is concluded that graph reading increases the understanding of printed material. If the facts presented by graphs are simple, some fourth grade children can be taught to interpret them in the natural development of classroom activities.

Vocabulary Study in Connection with the Unit of Work Being Used at the Time

In the teacher's edition of My Weekly Reader a letter to the teacher states that of the four skills tested by this publication,

vocabulary from context and selecting main ideas are the most difficult for pupils the Nation over.⁸

The children's edition of this publication gives a good deal of space to the mastery of vocabulary. The writer welcomed this added help for her students.

Edward Dolch states, "Full knowledge of a word's meaning develops from meeting it in many contexts rather than from direct dictionary study."⁹

Vocabulary study, in connection with the unit being studied, had already been tried out on the group the preceding year so it was felt that it should be incorporated in this year's work.

Though he possibly may not have had the same kind of work in mind, George Hodgkins, in agreement with the writer, states, "Skill in getting and giving knowledge through language, depends on vocabulary."¹⁰

Paul Witty in his book, Reading in Modern Education, suggests that children bring in words that they are not sure about and discuss them in class, organize definitions and enter them in class Study Word Book. He says that vocabulary should

. . . have preliminary explanation to ease the burden occasioned by unfamiliar terms; by detecting and correcting inaccurate or distorted concepts; by using discussion techniques

⁸My Weekly Reader, Teacher's Edition, Vol. XXXIV, No. 4 (Columbus, Ohio: American Education Press, 1952).

⁹Dolch, E. W., Problems of Reading (Champaign, Illinois: Garrard Press, 1948), p. 251.

¹⁰Hodgkins, George W., "Skills in Social Studies," Social Education IV (March 1940), p. 197.

to assure understanding; and employing direct experience, pictorial presentation, and wide reading to foster clear comprehension.¹¹

At the beginning of the year, as such terms as map key, summary, recreation, products, provide, were used, the meaning was discussed, defined and written on the board. Later they were copied on news print and tacked to the wall. As these words became numerous and thus occupied too much space, they were copied and placed in the children's notebook. These words were used in context in conversation many many times, and often re-defined. However, when the number reached fifty and the material was seen to be classified under varied subjects, it appeared that the words should be entered under appropriate headings. A great many of the words were social studies words. It finally developed that each unit had its own vocabulary. There were usually twenty-five to thirty words that a child would likely encounter in his reference and text reading. These words were selected both by the teacher and the children. The first test indicated that the children found the work difficult. After the second test the children showed that they realized that this was a means of enriching their studies. Many children made games of learning the meanings and took great pride in seeing how soon they could define all the words. They were quite happy when they came across the word in their reading, as though they had met an old friend.

¹¹Witty, Paul, Reading in Modern Education (Boston: D. C. Heath and Company, 1949), p. 173.

At first parents seemed confused by this means of teaching. They seem to think that definitions had to be memorized and repeated word for word. After the purpose was made clear to them, many of them seemed to enjoy reviewing the children at home. One mother ventured to say she herself was learning things. For a copy of a vocabulary, see Appendix M.

Though some children found the work unpleasant at times, all stated in answer to the questionnaire, that they thought it made the work more interesting. Parents too, commented favorably on this method.

A difficult teacher-made test toward the end of the year brought the following results:

2 children made below 70.

7 children made 70 to 79.

5 children made 80 to 89.

8 children made 90 to 99.

8 children made 100.

See Appendix N for a copy of this teacher-made test.

It is concluded that vocabulary study is imperative to full understanding of printed material.

Use of My Weekly Reader¹²

My Weekly Reader is a weekly newspaper giving appropriate news items for each grade level. There are suggested activities for increasing one's ability to understand printed material. Usually there

¹²Gray, William S., and Gates, Arthur I., My Weekly Reader (Columbus, Ohio: American Education Company, 1952).

are also ten questions on the material covered in each issue, that may be answered by filling in blanks, multiple choice and true-false. Occasionally there is a section on dictionary skills or word attack. This phase of work created interest in daily newspaper reading. It encouraged headline reading and picture reading. If either reading suggested that an item was appropriate, the child would usually read farther. Great was the pleasure when My Weekly Reader published a story that had already been reported in opening exercises. Also it was a great satisfaction when an issue was devoted to some unit we had already studied such as conservation.

It is concluded from observation that the use of My Weekly Reader is an excellent means of strengthening skills in understanding printed materials.

Selecting Important Ideas in Paragraphs or Other Selected Material

Selecting important ideas in a difficult skill for many fourth grade children, but it seems that it is one that should be given much attention. As stated before, My Weekly Reader Teacher's Edition states that of the four phases of reading that the publication attempts to test "getting vocabulary from context and selecting main ideas are hardest for the children the Nation over. It has been found that exercises to improve performance in these skills can benefit all pupils. Even the best pupils can improve."¹³

¹³My Weekly Reader, Teacher's Edition, Vol. XXXIV, No. 4
(Columbus, Ohio: American Education Company, October 6-10, 1952).

The reading text, Today and Tomorrow, gives many exercises in this work. After selecting the main idea, the children are gradually led into summarizing through selecting the supporting ideas.¹⁴ The writer began this kind of work in the reading text about the second month of school with the best reading group. The second group began this work soon after Christmas. The third group was never advanced enough for the reading vocabulary of this book. However, as stated before this method of study was employed throughout the year in the social studies and science, and sometimes health.

The questionnaire filled out by the children indicated that about half of the children thought that they learned more when the teacher put questions on the board than when they selected the facts. This may have been the case. Of this Claude Crawford says, "Under this plan, knowing is no longer the prime purpose of education, but rather the stimulation and directing of thought, feeling, and action. As one educator puts it, the greatest of these is action."¹⁵

Frank Thomas also agrees. "The standard by which the value of recitation procedure must be judged, does not consist in the number of facts presented, but in the increased power developed in the pupils."¹⁶

¹⁴Hildreth, Gertrude, Today and Tomorrow (Chicago: John C. Winston Company, 1948), p. 375.

¹⁵Crawford, Claude C., Teaching the Social Studies (Los Angeles: University of Southern California, 1932), p. 117.

¹⁶Thomas, Frank W., Training for Effective Study (New York: Houghton Mifflin, 1922), p. 11.

Among the poorer students, there was a great deal of progress made in this work. Among the middle and better groups, the progress, made evident by class discussion and contribution, was remarkable. For the slower pupils this may have been a waste of time. The element of readiness may have been involved. The writer intends to experiment farther with this phase, to try to find some methods to create readiness in these children. Of this Bessie Stillman says

Now if a child, because of immaturity or because of his immaturity or because of his type of mind, cannot recognize the foothills as related to the mountains, he should not be attempting this kind of work. There are various reasons for such failure.

Nothing is gained by attempting to force children lacking the analytical ability to use an instrument which in their hands cannot function. As soon as it is discovered that they are beyond their depth in such a lesson, as the preceding, they should be provided with another type of work, by means of which they can master the minimum essential facts of the subject matter.¹⁷

From evidence supplied by observation, informal tests and Iowa and My Weekly Reader tests, it is concluded that the children of this classroom made all the progress that could reasonably be expected of them in understanding printed material.

Defining the Problem

The subhypothesis to be discussed in this section is that skill in defining the problem will be strengthened in:

- a. deciding what is the author's purpose in writing the text,

¹⁷Stillman, Bessie, Training Children to Study (New York: D. C. Heath and Company, 1928), pp. 83 and 85.

- b. deciding what things we will study in each large unit,
- c. deciding "what questions do we ask ourselves" in order to decide what to include in oral and written reports.

Deciding the Author's Purpose in Writing the Text

In Chapter V of *Training for Effective Study*, Frank Thomas lists effective methods of study as (1) drill, (2) collecting and organizing, (3) solving problems, (4) memorizing. He states that an assignment should not call for all of them, but the teacher should adapt each to the purpose. Then he suggests one very good indication of study is when children take a forward look through the book or chapter to determine the purpose. They then know what to look for. Pupils must have a clear idea of purpose for it is a necessary condition of study.¹⁸

Early in the fall, before the social studies text had been used, the subject of purpose in activity was discussed and illustrations of why it is necessary were given. The film How to Read a Book¹⁹ had been shown and the children discussed the parts of a book and the use of each. They had opened their texts to see what purposes its author had. The Forward was written for the teacher and the vocabulary was difficult for the children, so the teacher brought out, through conversation that the book was written to help children understand how climate and location affect people and how they provide themselves with food,

¹⁸Thomas, Frank W., Training for Effective Study, Chapter V (New York: Houghton Mifflin Company, 1922).

¹⁹How to Read a Book (Chicago: Coronet, Coronet Building), black and white, sound, ten minutes.

clothing, and shelter, the necessities of life. All the unfamiliar terms were defined on the board for their vocabulary list.

From observation, it is concluded that deciding what the author's purpose is is a skill that has its beginnings in the fourth grade but matures in later grades.

Deciding What to Study in Each Large Unit

Linda B. Earhart also analyzes the recognition of the problem as one of the study processes. She says

The problem should be as clearly defined as possible before its solution is undertaken. To be aware that there is a crisis or tension in experience is one thing; to have analyzed the situation so as to see just where the difficulties lie is quite another, and to determine possible modes of accomplishing the solution is still another.

She says that a clear understanding of the problem furnishes the criterion for the acceptance or rejection of material, and for its organization.²⁰

Roy Bryan in Seven Rules for Clear Thinking suggests that defining the problem implies also defining the terms used.²¹

Julius Boraas says that in formulating questions and establishing a purpose the pupil is learning to take the initiative, a very important part of study.²²

²⁰Earhart, Linda B., Teaching Children to Study (New York: Houghton Mifflin Company, 1909), pp. 19-20.

²¹Bryan, Roy C., Seven Rules for Clear Thinking (Ann Arbor, Michigan: Edward Bros., 1947), p. 20.

²²Boraas, Julius, Teaching to Think (New York: Macmillan Company, 1922), p. 102.

The day following the discussion of the author's aims, the class was guided into aims and purposes in studying Knoxville, before they studied other people far away. These aims were written on the board, worded and carefully reworded. For the result of this group thinking, see Appendix H.

It is concluded that the importance of the skill in defining the problem through defining aims for large units can scarcely be overestimated. It seems to be the pivot around which all true learning revolves.

Self Questions

Deciding "what questions do we ask ourselves" in order to decide what to include in oral and written reports.

Having defined the aim for the large unit of work, the next step was to define the problem for each committee. This was tedious work and often it seemed that it was too difficult for the class. Once each committee had decided on its purpose and formulated its questions, the work was multigraphed and put in the children's notebook for future reference. (See Appendix I.)

As the year progressed, the children seemed to become orientated in this kind of work. When writing reports on foreign countries, each child decided on several "big questions" whose answer might include many small details. These questions were handed in to the teacher before the report was begun. These questions were discussed with each child and corrections and suggestions were made. Once the child had his purpose clearly in mind he could proceed pretty much alone. As the year

came toward the end many children came to evaluate their questions alone and the teacher did not see them until the entire report was submitted. Once these questions were established and arranged in correct order, the children were told to collect information and arrange the details in any way they judged best. At the last of the report they were to answer these questions in a few concise statements, without detail. This formed a summary. (See Appendices G, P and DD.)

It is concluded from observation of the children's work and from comments of parents that defining the problem for each report is just as important as defining the problem for other larger units of work.

It is concluded from observation, diary, and from review of children's work, both individual and class, that the class has made excellent progress in defining the problem.

Hypothecation

Skill in hypothecation will be increased by:

- a. recalling what we know about the units to be studied,
- b. taking some forward looks through the text and making some "reasoned guesses" about the things we will find out,
- c. applying some generalizations to climate, clothes, food, and shelter of each country we take up.

Frank Thomas says that teaching hypothecation should begin in the first grade when children guess ahead as to the outcome of the story. It is continued in the second and third grades as they learn to improve by applying book information to outside problems, arising in nature

study, home geography or handwork. Fourth grade children should quote page and paragraph number in answer to questions. That is, as a solution to their problem. The next step is to interpret matter and put it in their own words.²³

Recalling What We Know About the Unit to be Studied

In the study of Knoxville there was a great deal of discussion about the means people have of providing themselves with food, clothing and shelter. The children felt that they had a pretty secure base on which to stand in the possible answer to their questions. However, they were urged to continue to search to verify their ideas.

This unit was interrupted by the teacher's absence. On returning to school there was a brief review of the units covered during her absence. These were units on jungle life and Baffin Bay Eskimos.

Taking Some Forward Looks Through the Text and Making "Some Reasoned Guesses" About the Things We Will Find Out

In all units the children were urged on taking up a new section or unit to take quite a bit of time looking through the book, reading bold face print, looking at pictures and reading the captions for the pictures. So well impressed upon the children was the importance of using this skill that later when they were asked to write down just what they did to study a lesson, most of them listed this first. See Appendix Q for a copy of what one child did to study the lesson.

²³Thomas, Frank W., Training for Effective Study (New York: Houghton Mifflin Company, 1922), p. III.

By the time the units on Eskimos and jungle life had been reviewed, it was close to Christmas and it seemed that it would be unwise to lead into a large unit of study so the Kazaks, a nomadic tribe who live on the lower steppes of Russia were chosen as the next social studies unit. The children tried to make some guesses about the kind of life that these people would lead, but they had too little experience from which to draw. Work proceeded by letting them look through the section of the text, read captions and bold face type and make some guesses about what they were to find. This work was done in class and written on the board. At this stage the children seemed a little confused, so the work was not multigraphed. Though this kind of work was not entirely abandoned, the teacher question type of procedure with ample class discussion was followed for a time. Christmas vacation intervened and after this the teacher was absent another six weeks.

Applying Some Generalizations to Climate, Food, Clothing, and Shelter of Each Country We Take Up

When the units on jungle life and Eskimos were being reviewed, the opportunity was taken to compare and contrast these two climates in order to make some generalizations about the effect of climate and location on people of the world.

The class concluded that warm climates make food getting much easier provided there is moisture too; that cold climates are conducive to brisk exercise; that cold climate requires fatty foods and that hot climates make durable shelter not so necessary.

After Christmas upon the return of the teacher the children elected to study "Egypt, the Land of the Nile." With the new year new

interest was aroused and some real hypothecation began. They wrote some accurate guesses about climate, food, clothing, and shelter. They reasoned that where water could be provided food would grow well and some of the fruits would be tropical, that only light clothes would be necessary, and that houses would only require to be durable enough to keep out the sun.

After Egypt the children elected to study India. They reasoned that India was close to Egypt so that the climate must be hot, at least in some parts, and the people must be dark skinned, clothing would be light, food would be sheat, rice, and spiced, climate would require a more permanent type shelter than Egypt and that there would be many types of religions. For further details, see Appendix O. (Also see pages 151 and 152 for another form of hypothecation.)

On the China unit, the writer thought that the children were mature enough to do individual "guessing" on each committee. A sample of this will be seen in Appendices S and W.

It seems apparent that hypothecation is a difficult skill for the fourth grade. However, this may be due to faulty technique on the part of the teacher. It is concluded that the class did make some progress, however, and that the result is worth the effort.

Collecting Data

The subhypothesis to be discussed in this section is that skill in collecting data will be increased by:

- a. collecting appropriate news items from newspapers for opening exercises,
- b. exercises in connection with the unit of study at hand in the use of (1) dictionary, (2) alphabetizing, (3) index, (4) table of contents, (5) preface, (6) summary, (7) other book cues,
- c. using reference in collecting material for oral and written reports,
- d. field trips,
- e. interviews,
- f. inductive reasoning, discovering factors that affect climate, food, clothes, and shelter, at the beginning of the unit of work in early fall,
- g. deductive reasoning in applying principles to type of climate, etc., each country will have,
- h. cooperative thinking and planning in class.

Collecting News Items

This subhypothesis has already been fully discussed in Chapter II. It can only be added that only twice in the year did any child bring in inappropriate news items. They were immediately reprimanded by some member of the group in a firm but courteous manner. This sense of discrimination of the entire group is attributed by the writer to the use of My Weekly Reader and to the fact that part of the group had received training the preceding year in the split class.

Exercises in Unit of Study

Exercises in connection with the unit of study at hand in the use of (1) dictionary, (2) alphabetization, (3) index, (4) table of contents, (5) preface, (6) summary, (7) other book cues.

All through the year book aids were discussed and use in appropriate places. A test was given after seeing the film How to Read a Book as shown in Appendix R. Other uses of book cues are shown in Appendix Q. This is the work of a child in compliance with an assignment that directed the children to study the lesson for the day and write down what they did exactly. Methods used in teaching these skills were discussed in Chapter III and it was shown how these skills functioned.

Using Reference in Collecting Material for Oral and Written Reports

Methods of making a report have already been discussed in Chapter III. A memorandum given the children to keep in their notebooks is included in Appendix T. It was developed by the class and assembled on the board. One mother, after looking through her child's notebook, commented that just anybody should be able to report with such excellent aids. She compared the work of her fourth grade child with that of the child in the fifth and concluded that he knew more about study and reporting than the fifth grade child.

A few oral reports were made throughout the year. These were mostly on science. One was the article from Life magazine on the bee.²⁴

²⁴Freund, Rudolph, "The Life of the Bee," Life (Chicago: Time Inc., August 11, 1952), pp. 62-69.

It is concluded from test results and observation that skill in collecting data will be greatly aided and increased by use of the external skills.

Field Trips

A number of field trips had been planned for the Knoxville unit to places where the children could see how different occupations functioned. Some of these places were a concrete and tile factory, a flour mill, and the water plant. Due to the teacher's accident these trips had to be abandoned.

The only field trips taken were in the spring when a few nature walks were made to observe birds and common garden flowers. These walks were discontinued because it was felt that the majority of the children were not attentive enough to really benefit from the experience. A test on their observations showed that sixty percent of the class made below seventy on ten questions. It appeared that the time could be used to better advantage, although a few individuals had really profited by the experience.

It is concluded tentatively that field trips, if properly conducted, will increase skill in collecting data.

Interviews

At the time the unit on Egypt was being studied one of the parents who was attending the University arranged for an exchange student from Alexandria, Egypt, to come and talk to the children. He arrived one morning at ten o'clock and stayed until two o'clock.

Before he came the class discussed appropriate behavior of the class and the kind of information they were to seek. It was stressed that they should not ask questions where answers could be found in their books. Each child wrote four questions that he wanted to ask of our visitor. The teacher looked over them and marked out poor questions or inappropriate ones. See Appendix U. It was a very wonderful experience for the entire class. Mr. Kamel, being a teacher and being accustomed to children grouped their questions together and organized the information on the board. Here it remained for several days for review purposes. The children were very attentive. Mr. Kamel was very patient with the innumerable questions asked of him, both in the school room and on the playground at lunch. One memorable experience was that he wrote each child's name on a card in Arabic. In writing a thank you letter to him the next day, many signed their name as he had written it.

This means of gathering information is one of our oldest but often neglected in the school room. On going down to the lunch room Sue took Mr. Kamel's hand and said, "I'm so glad you came. I just didn't know what on earth to write on my shelter report before you came but now I know!"

The day after Mr. Kamel's visit the children were asked to write as much as they could remember of what he had told them. Appendix V is an example of what one child remembered.

A few weeks later Mr. William Johnson, a member of the bird club, and his wife visited the school and talked to the children. He brought a case of fifteen stuffed birds and left them with the class for three

weeks. This was another excellent experience for the children. Time and space will not allow a detailed account.

It is concluded that interviews greatly increased the skill of collecting data.

Inductive Reasoning

Inductive reasoning, discovering factors that affect climate, food, clothing, and shelter, at the beginning of the unit of work in the early fall.

Linda B. Earhart says of inductive study ". . . the generalization, whether it be definition, rule, or principle, must be discovered by the student before he can apply it to the solution of the problem upon which he is engaged."²⁵

In the beginning of the year the children were aware that the farther north one goes the colder the climate becomes. They were not aware that if one goes far enough south it also becomes cold. A discussion centered around the Smoky Mountains. This made them aware that altitude also causes cold. A few were able to recall that food, clothing, and shelter depend upon what is available. A discussion brought out the fact that what is available often depends upon climate. These principles were discussed at the beginning of each unit.

Deductive Reasoning

Deductive reasoning in applying principles to type of climate, shelter, clothes, and food each country will have.

²⁵Earhart, Linda B., Teaching Children to Study (New York: Houghton Mifflin Company, 1909), p. 25.

As the year progressed, the entire class showed that they were able to apply such principles.

Of this kind of reasoning Linda B. Earhart has more to say.

"When a person studies deductively, he seeks to solve his problems, or satisfy troublesome situations by employing principles, rules or some other form of generalized knowledge which he already possesses." She goes on to say that still there is the need to understand and analyze the problem. Still there is need to collect data from observation, experimentation, memory, imagination, reading and consultation with others. Adopt each in light of the needs of the problem.²⁶

Deductive reasoning was put into use when the class was attempting to make hypotheses.

One very good example of deductive reasoning occurred when the children were studying the Kazaks. The text spoke of a peddler who appeared at the winter lodgings in early spring. J. D. asked, "If there are no real highways how would the peddler know where to find the Kazaks?" Several children ventured improbable solutions of the problem. Joe finally said, "Well, I suppose if the winter quarters were built along streams, as the book tells us, the peddler would know to follow the streams." It should be noted by tables that Joe did not have the highest I.Q. in the class, nor did he rate highest in the fall scores, but through the help of methods used in this classroom he made record growth in critical thinking and other study skills. He must have had a

²⁶Ibid., p. 25.

natural bend for this but it had not been evident to the teacher who had him the preceding year.

In another discussion a child asked if the Kazaks have any recreation. Did they have any feasts such as the jungle celebrated the durian harvest? Most of the class thought that probably music and simple games would be their own recreation. J. D. said that since water was so scarce on the steppe, perhaps they celebrated the coming of spring rains.

In the spring Molly reported an earthquake. She said she had forgotten if the article had said it was in Sweden or Switzerland. J. D. said, "I expect it was Sweden for most of the earthquakes occur along coast lines."

For another example of hypotheses arrived at through deductive reasoning, see Appendix W.

It is concluded that both inductive and deductive reasoning will increase skill in collecting data.

Cooperative Thinking and Planning in Class

A number of instances have already been described in past pages where class planning has taken place. The work on the bee frieze described in Chapter III, pages 104-107, is a notable example. Other examples will appear in future pages,

It is concluded from observation of children at work, from a review of their work, and from the many favorable comments of parents that the children made excellent progress in learning the skill of collecting data. Some of the parents' comments have been given in Chapter III.

Evaluating Data

The subhypothesis to be discussed in this section is that skill in evaluating data will be increased by:

- a. learning some of the steps in propaganda analysis and attempting to apply them to things they hear and read, such as radio talks, actual conversations, and advertisements: (1) identifying assumptions, (2) discriminating between facts and opinions, (3) discriminating between what is true and what is probably true, (4) identifying statements that play on emotional bias, (5) identifying appeal to authority as justification for argument,
- b. collecting news items,
- c. collecting data for reports,
- d. referring to defined problems,
- e. class evaluation of individual reports,
- f. self-evaluation of work by check lists and rating sheets,
- g. discussion and collecting criteria for evaluating work, books, radio programs and picture shows,
- h. collecting material for pupil lecture or pupil (or committee) quiz,
- i. deciding what to include in a diarama, table show or peep show.

Of evaluation Julius Boraas says,

A part of every school exercise should be devoted to the development, expression or evaluation of specific judgment. . . . The value of a judgment, expressed by a pupil in school, does not consist in its accuracy but in the training which the pupil receives.

He says that an erroneous opinion should be evaluated by pupil and teacher, amended so as to be correct, verified, and compared with the erroneous one.²⁷

Learning Some Steps in Propaganda Analysis

Evaluating data includes learning some of the steps in propaganda analysis and attempting to apply them to things they hear and read, such as radio talks, actual conversations, and advertisements: (1) identifying assumptions, (2) discriminating between fact and opinion, (3) discriminating between what is true and what is probably true, (4) identifying statements that play on emotional bias, (5) identifying appeal to authority as justification for argument.

Roy Bryan's definition of assumption is a fitting one to apply here. He says, "An assumption is simply an opinion, guess or theory of which remains to be determined." He also states that we could not carry on a normal life without some assumptions.²⁸

Every attempt was made to convey to the children this meaning. The children used the expression, "taking it for granted," however.

Roy Bryan also states that children should learn to use the term "some" rather than "all."²⁹ As illustration, in giving a report on the foods of China, Ernestine said, "All the foods of China are thus and

²⁷Boraas, Julius, Teaching to Think (New York: Macmillan Company, 1922), p. 45.

²⁸Bryan, Roy C., Seven Rules for Clear Thinking (Ann Arbor, Michigan: Edwards Bros., 1917), p. 23.

²⁹Ibid., p. 32.

so." Julia promptly said, "How do you know it is all?" Mary Ann said, "Sounds like an opinion rather than a fact to me." Ernestine promptly amended her statement as Roy Bryan suggested.

Identifying assumptions was a difficult skill to help the children understand. The scarcity of diary notes related to this skill is evidence that this is true. The children could discriminate between fact and opinion, what is true and what is probably true but hidden or unspoken assumptions were never understood. The explanation probably lies in the writer's own weakness at this point and as Bessie Stillman says, a teacher who does not know, or knows little of work skills, cannot guide children in them.

Discriminating between what is true and what is probably true seemed to more naturally arise in the normal life of the group.

One morning at news time a child gave a news item from Japan. Gene said, "Japs are bad. They cut people's tongues out." When the teacher attempted to explain that this was not entirely true, he said, "My Dad was over there. I know!" It took some time to convince him that all Japanese people are not bad.

Another news item that elicited much discussion was a story of a "monster" that had been seen in a rural area of North Carolina. Some of the children were inclined to believe it because the paper told the name of the person who said they saw this fire breathing creature. A long discussion followed which brought out many points, what is true or false or probably false, and that just because a story appears in print, it is not necessarily so. Most of the class agreed that it was probably

a case of over excitement on someone's part and possibly it was a hoax to create a sensation. When the paper published an article a few days later verifying their conclusion, they were quite proud of themselves.

One day J. T. brought in a news item about a Canadian goose that had been crippled. He had not read the article carefully and told a twisted version. Two other children had seen the article and each in turn told a distorted version. Whereupon the teacher read the article to the children and presented the facts as they were written. A week later My Weekly Reader published the story. The children all laughed when a child remarked, "This time we'll get the story right." However, this served the purpose of showing how rumor gets started. To impress it even more it was suggested that the class play the old game "Gossip" where one person whispers a sentence to another person who in turn whispers what was heard and so on till all have relayed the message. Of course the sentence never ends as it began.

Another weakness observed in the children was in reporting. They would begin a sentence, become confused, and end lamely with "or something like that." This was called to their attention so often that when anyone made that remark, even the teacher, some child was sure to say, "Say what you mean and mean what you say!"

Appeal to authority was discussed when a Life magazine, lying on the table, displayed a cigarette advertisement saying a certain movie star smoked them. At the close of the discussion Ben laughed and said "I eat Wheaties because Trigger advertises them!" He saw the poor reasoning behind it and considered it a joke on himself.

Many more instances occurred that gave the class ample opportunity to think through modern advertisement, newspapers, and normal conversation but space does not allow for a description here.

It is concluded from observation of the quality of responses of the pupils to what were probably faulty teaching methods that skill in evaluating probably would be increased by learning some of the steps in propaganda analysis.

Collecting News Items

This skill has already been discussed in Chapter II and this chapter under the subhypothesis related to collecting data.

Collecting Data

Collecting data for reports has also been discussed in this chapter.

Referring to Defined Problems

As has been stated before the purpose of defined problem determines the relevancy of data. Most of the children well understood this at first. However, at the beginning of reporting the children were often cautioned to "stick to the subject." On the whole the children selected only pertinent material, as their reports gave evidence.

It seems evident that this activity like any other evaluation situation would increase competency in the skill of evaluation.

Class Evaluation of Individual Reports

After a child had read his report to the class, he then called on anyone who had their hand raised for criticism. The children were candid but fair in their criticism. They were instructed to be specific in their criticism, not just say a report was good or bad.

Examples of criticism were as follows:

Pam said, "I think your report was better than mine."

Ernestine remarked, "You got more information than I could have if I had been on that committee."

Elizabeth said, "I liked the way you explained the words you thought we might not understand."

J. D. said, "It was a good report, but the way you practically lay down on the bookcase took our attention away from the report."

Mary Ann said, "It was a good report as much as I heard. You were holding your paper up and reading so low we could not hear you."

In only one case did a child take adverse criticism in anger and sulkiness. In this case the criticism was both just and tactfully worded.

It is concluded after two years of having pupils take part in this activity that this is a very excellent way to learn to evaluate. It gives the child some feeling of assurance that his classmates who think and feel like he does, share in the responsibility of rating his work.

Self-Evaluation by Check Lists and Rating Sheets

The report on study habits that was sent to parents was also used for a self-evaluation sheet. On this, a second copy, the children rated themselves and then compared their ratings with the teacher's rating of them. See Appendix B.

Self-evaluation appears to be a matter of maturity. In general the better students tend to rate themselves more accurately, or more nearly like the teacher rates them than the slow students. The fact that they cannot see their shortcomings clearly may be one reason why slow students do poor work.

Discussion and Collecting Criteria for Evaluating Work, Books, Radio Programs, and Picture Shows

A little work was done on evaluating radio programs and the kind of picture shows children should see. However, nothing outstanding was done. It was found that time was short and most of the parents kept a check on the pictures that their children saw.

Collecting Material for Pupil Lecture or Pupil (or Committee) Quiz

The fact that children brought in many appropriate pictures to show at opening exercises and later used it for pupil lectures has already been reported.

Toward the end of the year it was suggested that children volunteer to review the class on a unit before a test was given. One or two children prepared questions which they thought would cover each committee subject. They took charge of the class, quizzed their classmates

orally and made corrections when wrong answers were given. A sample of such a quiz is given in Appendix X.

It is observed that this is excellent experience for the children and at the same time each child's strengths and weaknesses appear in relief.

Deciding What to Include in an Illustrated Map

When the map was made of Egypt, only a few pictures went into it, pyramids, palms, an oasis village, a caravan, and the Sphinx. However, when the children made the map of India they had trouble deciding what was most important of all the many interesting things they would like to put in it. They included a snake charmer to represent the fakers of India, the Taj Mahal to represent historic aspects, a camel to illustrate the dry section, a jungle and tiger to represent the moist hot section, temples of Benares for religion, a woman in a sari for costume, and jute workers to represent occupation.

As has been said before all this map making is excellent for many purposes, evaluation included.

Deciding What to Include in a Diorama, Table Show or Peep Show

When studying China peep shows were made. The work was not compulsory but most of the children took part. Several children worked on each box by mutual consent. One of the most original boxes portrayed the interior of a room with shelves along the walls. On these shelves were baskets made of colored paper with chopped up paper for mulberry leaves. In the center of each basket were several white small beans.

When asked what they represented the child responded in surprise, "Why silk worm cocoons, of course!"

Other boxes portrayed a tiny temple with an arched gate in the wall, a street scene with a tiny jinricksha, a yard scene with noodles drying on a rack, a small village with humpbacked bridges, and several boat scenes.

It is concluded from daily observation and the account given in above paragraphs from the diary record that the children made splendid progress in learning to evaluate most of their activities discussed here.

Organizing Data

The subhypothesis to be discussed in this section is that skill in organizing data will be increased in:

- a. making oral and written reports,
- b. map making,
- c. graph making,
- d. bulletin board display,
- e. arranging pictures for pupil picture lecture,
- f. class planning for work to be done,
- g. making check lists for study skills,
- h. making comparison of countries for (1) likenesses and differences, (2) cause and effect relationships, (3) evidences and contributions of civilization,
- i. learning to define the problem,

- j. making list and using book cues, such as italics, 1, 2 and 3 headings,
- k. outlining (class work),
- l. arranging peep shows, table displays,
- m. making individual booklets,
- n. memorizing (1) for future rule or principle, (2) through association,
- o. recall for hypothecation,
- p. arranging questions for individual or committee quiz.

Making Oral and Written Reports

The means of writing reports has been discussed and the guide for writing them given in Appendix T. This consists of a title, questions, main body of information, summary, footnotes, and book list. Appendices G, P and DD give examples of children's reports.

A summary of the Knoxville unit was assembled and put into multigraph form. It is given in Appendix Y.

In collecting information for this summary, the children talked to their parents, looked at telephone directory yellow sheets, made direct observation of the community around them, read library books on life in the city, viewed movies of neighborhood helpers and occupations, and discussed them for days and days.

This summary is organized from the key questions the class worked out in order to define their purpose in studying Knoxville. (See Appendix I.)

It is the conclusion, derived from observation of children at work, review of their reports, and comments of parents, that reports of this kind are an excellent means of organizing data.

Map Making and Graph Making

Both (b) map making and (c) graph making have been discussed in this chapter and conclusions as to their value were made.

Bulletin Board Displays

For most of the year Julia was the bulletin board chairman. She did an excellent job both in arranging the board and keeping the picture file in order. At times other children would volunteer to arrange the board for a week. Sometimes they used the room picture file; at other times they brought pictures from home. Often they arranged suitable captions for individual pictures or groups of pictures. Sometimes posters were made and occasionally a report or other written material was included in a display. Occasionally a shawl, cap or foreign costume was displayed.

This activity aroused much interest and was both a satisfying and learning experience.

Pictures for Pupil Lectures

In this chapter (e) arranging pictures for pupil picture lecture has already been discussed adequately.

Class Planning for Work to be Done

When the children were studying India they asked if they might make a frieze. Their request was honored but they were asked how they

planned to go about it. They discussed different ways of approaching the job; they could all draw pictures and then select the best to be put on the frieze; they could elect a chairman for the entire frieze and he could tell them all what to do; they could elect a chairman for each panel if they chose to make it in panels. All suggestions were put on the board to be considered. The question arose as to how many panels they would have. Julia said they could have a panel for each committee. Ladd thought it would require too many panels for the amount of paper they had. J. D. said they could get another piece of paper and have two panels. The teacher here suggested that if this was done all the board space would be covered and no writing could be done for at least a week and probably longer, and in that case it would paralyze other activities. Joe brought out the crowning suggestion which the class readily accepted by unanimous vote. He said, "Since food, clothing and shelter are the main things, suppose we have a panel for each of them and then each chairman can squeeze in information from the other committees as it fits in with their main heading." This was done.

Geroldine, Ladd and Rebecca were chosen as chairmen because they drew well, worked well with other people and had good ideas. They chose other "committee members" until all of the children were selected to work on a panel. Anyone who had a picture he wanted to copy or any suggestion about what should go on the frieze conferred with the chairman. The chairmen went to work on the picture file to select appropriate pictures. Ladd was asked by the other chairmen to put the labels

on the panels because he did the best lettering. It is observed that the chairman were unexpectedly tactful in assigning tasks to all their committee and that they organized their work in the best way possible. All went to work without flurry or unnecessary noise and the frieze was finished in two weeks.

The group planning of this class was, in the estimation of the writer after sixteen years of teaching, excellent. The organization arrived at through discussion was indeed unusual.

Making Check Lists for Study Skills

Eleven items are listed in Appendix T for a child to check himself by in writing a report. These were worked out by the class.

The writer found it an excellent means of helping the children organize their work.

Bessie Stillman says ". . . grouping may consist of arranging facts in a series because of resemblance, in two lists to emphasize contrasts. . . . We may think of a product map as an organization of data." She suggests giving children the big headings and letting them fill in the lesser ideas.³⁰

A study aid was worked out by the teacher and given to the children. An example of this aid will be found in Appendix Z. A copy of what one child included in this skeleton will also be found in Appendix AA. The information was to be collected from any possible source, text, reference books, moving picture or still pictures. This was to

³⁰Stillman, Bessie, Training Children to Study (New York: D. C. Heath and Company, 1928), pp. 48-49.

be used as an aid to review. Another aid, worked out by the group is found in Appendix BB.

During the preceding year the teacher and children worked out another sheet to help analyze their reports. Each item was rated in accord with the school report card, A, B, C, D, and F. A represented superior work, B above average, C average, D below average, and F failure. This sheet was mounted on the bulletin board this year just to remind the children of these points to be evaluated. The preceding year a copy had been placed in each folder with their ratings for each report, the first the child's evaluation and the second, that of the teacher. (See Appendix CC.)

It is concluded that check lists, outlined, study aids are indispensable in helping children organize their work. As one parent put it, "This guide for writing a report is something tangible, something a child can use from here through high school."

Making Comparisons of Countries

For (1) likenesses and differences, (2) cause and effect relationships, (3) evidence and contributions of civilization.

As has been mentioned before each country as it was studied was discussed as to the effect climate and location had on food, clothing, and shelter. This cause and effect relationship formed the basis of a number of generalizations. At the same time evidence of civilization was discussed. The children had trouble in defining what they meant by the term civilized and to be truthful, it was difficult helping them put it in terms that they understood. They finally concluded that

civilization implied education and the ability and realization of the need for cooperation among all people of the world. This was not an exact definition, but the matter was not pushed farther for fear of confusing the children. In a matter as profound as this a working understanding seemed sufficient.

Another good example of comparison made was when the children studied the social insects. They compared the ants and bees in all the main headings given in the bee frieze in life cycle, kinds, enemies and work. (See pages 105-107.)

An original bit of comparison appeared in Elizabeth's report on China Food. She began by comparing the foods of China and India for likenesses and differences.

The countries that brought on the most discussion as to contributions to civilization were Egypt and China. There was some parallel reading done in the reading texts and several good books were brought in from the branch library. Having had Mr. Kamel, the visiting student, with us gave the class an excellent view of life in the cities as well as rural activity. This also led them to compare Egyptian cities with American cities and the striking resemblance noted. This made such a profound impression on the class that in study of other countries they often made a search for pictures that would give them information related to this discovery. In his China transportation report, Joe discussed poor transportation as being one of the reasons that China has so many dialects. He also says that having so many dialects in turn makes for poor transportation because people who cannot talk about

things cannot plan things. They he says, "But like all countries we have studies, in big cities, it is hard to tell you are not in New York. Everything is so modern."

A number of library books gave discussions of the contributions to civilization of both China and Egypt. These were discussed in an effort to help the children appreciate these two countries and their place in the world today. In a discussion of the Great Wall, after Ladd gave his report, the fact was brought out that because China for years shut herself away from the world, the result had been stagnation.

It is concluded that these comparisons of countries helped the children to learn to organize data.

Learning to Define the Problem

The methods for teaching the children skill in defining the problem has already been discussed in this chapter and it has been pointed out that the purpose determines the evaluation of material to be used. Appendix DD gives a report written by Joe, showing how organization of ideas was affected by his defined purpose or questions. The idea portrayed is deep for one his age and, therefore, is somewhat crudely worded. The idea originated from a brief paragraph from one of the library books. It seems evident that only a critical thinker would have understood the implication, much less attempted to state it in his own words.

It is concluded that not only does purpose affect selection but also organization of ideas.

Making Lists and Using Book Cues, Such as Italics, 1, 2, and 3, and Headings

As has been mentioned before the children were taught to use book clues in studying, in picking out things the author thought were important, and in getting an idea as to the author's purpose. See Appendix Q. This skill functioned in both organizing ideas in study and in organizing material for reports.

Outlining (Class Work)

Except for the outline exercises in the reading text Today and Tomorrow³¹ all outline work was done in class and placed on the board. The work portrayed in Appendix Z is a crude sort of outline that the children worked on alone in their notebooks. Other than this work and the class work it seems that outlining is too difficult a skill for fourth grade children. However, it appears that this beginning effort should be included in a year's work to create readiness for a fuller form in fifth and sixth grades.

Arranging Peep Shows, Table Displays

Peep shows have already been discussed in this chapter and the quality of selection shown. There were a number of table displays made during the year. In the early fall several children brought shells from Florida to show at opening exercises. It was suggested that they classify them in a collection display. Two books for classification purposes and a double spread page of photographed shells and their

³¹Hildreth, Gertrude, Today and Tomorrow (Chicago: John C. Winston Company, 1943), p. 375.

names were on the library table. A little time after school with the teacher enabled Geroldine to start mounting and labeling the shells. She in turn helped the other children who had less variety in their collection to also classify their shells. Ernestine volunteered to take charge of a science exhibit for a while. This was changed from time to time in the course of the fall. One display consisted of bird nests which had been left from the year before. Above each nest she mounted a picture of the bird whose nest it was thought each was. Rock collections were later brought in.

It is concluded that both table displays and peep shows are one of the most natural and, therefore, one of the best means of organizing data.

Making Individual Booklets

Barbara seemed to have a bend toward this activity more than any other child in the room. She constantly made booklets of material derived from class. An example was a booklet on Knoxville that she brought one morning. On one page she had copied the purpose of their study. On another page she traced in picture food from the farmer to the family. Another page was devoted to the kind of clothes people wear. These she had cut from a magazine. Another page was devoted to pictures of different occupations. The last page was devoted to houses which she had drawn.

Many of the children elected to make booklets of the material that had gone into the bee frieze.

While the regular teacher was absent the substitute teacher helped the children make health booklets. Multigraphed pictures also were used in making a booklet entitled Instruments of the Orchestra. A few pages were devoted to listing the instruments in each choir and describing the difference in each instrument or its distinguishing characteristics. This particular booklet gave little opportunity to develop individuality but served the purpose of helping children understand the arrangement of a symphony orchestra.

This activity like collections seems to be a very natural one for children of this age level.

Memorizing

(1) For future rule or principle, (2) through association.

Linda B. Earhart says,

Thoughtful memorizing is of a higher type (than mechanical) and should be employed much more extensively than it is now.

.
Memorizing based upon thought-associations, or associations of meanings, is present in deductive study also. It may not always be as prominent or as necessary as in inductive study, since frequently the results of previous memorizing are employed and then the process is tested. . . . Teachers often neglect this part of school work. The pupils learn to reason out situations in arithmetic and geography, and often let the matter rest there. There are many results which should be kept permanently, and therefore the association should be made strong enough to endure. After all the reasoning, there should be a residuum of things known exactly and permanently. Memorizing, then, cannot safely be omitted.³²

³²Earhart, Linda B., Teaching Children to Study (New York: Houghton Mifflin Company, 1909), pp. 52 and 77.

Rote memorizing was not employed in any of the work this year, other than memorizing songs. Here too, however, some association was recognized.

Rules for dividing words into syllables were memorized after they had been derived by inductive reasoning. They were applied to new words by deductive reasoning. This was also true of generalizations made as to climate and altitude. In case of climate the rule was not always quoted word for word but usually was accompanied by associated illustration, such as, "altitude causes coldness like when you go up in the Smoky Mountains."

It seems this activity arises quite naturally by necessity in much school work. The children seemed to understand its process and use it quite naturally.

Recall for Hypothecation

It has been described how children recalled what they knew about how people provide themselves with food, clothing, and shelter. It has also been pointed out how children recalled the generalizations they had made to make hypothesis for each new unit.

It seems impossible to recall without some form of classification in fitting rules or generalizations into a situation, in order to approximate an answer to one's questions, and of course this is what hypothecation is.

Arranging Questions for Individual or Committee Quiz

A glance at Appendix X, a copy of a committee quiz, shows the organization of the quiz as first, questions related to climate and

location and second, as to its effect on food, clothing, and shelter. In the estimation of the writer these children show an excellent sense or organization in this work.

It is concluded from observation of children at work, from review of their work and from parents' comments (some given in Chapter III), that the skill of organizing data has been greatly increased by methods described in connection with this skill.

Drawing Conclusions

The subhypothesis to be discussed in this section is that skill in drawing conclusions will be increased in:

- a. stating generalizations, rules, and principles arrived at through inductive reasoning,
- b. making ~~summary~~ statements at close of reports and large units.

The first part of this subhypothesis has been discussed in this chapter under the heading of Skill in Hypothecation, applying some generalizations to climate, etc., and again in the subhypothesis relating to collecting data, "inductive reasoning discovering factors that affect climate, etc."

In both cases the conclusion stated that the children had used the skill well.

The second part has amply been illustrated in Appendices P and DD. Here too, it seems the children did as well as children of this age level could be expected to do.

Verification

The subhypothesis to be discussed in this section is that skill in verification will be increased in:

- a. applying rules and principles to food, clothing, shelter, and climate with each unit of work.
- b. verifying hypotheses at the close of each large unit and at the close of the year.

As was stated above, the children formed hypotheses about the countries to be studied by applying rules, principles, or generalizations to food, clothing, shelter, and climate. They then proceeded to read in order to verify these "big guesses."

As to verifying hypotheses at the close of each large unit, it may be added that when the children had finished India and China they verified their hypotheses by way of reviewing and summarizing.

To spend some time each day the last week of school in reviewing the year's work and verifying hypotheses related to the year's work as planned in the fall. Constant interruptions prevented these plans from being carried out. In this respect the teaching situation was poorly directed, so that full realization of this hypothesis cannot be stated.

Nevertheless the children had a great deal of experience in verification in their reference reading which occupied a large part of the year's work.

Social Expression

The subhypothesis to be discussed in this section is that social-expression of findings will be increased through:

- a. class discussion,
- b. class planning,
- c. oral and written reports,
- d. drawings,
- e. dramatizations,
- f. maps, graphs and charts,
- g. peep shows, table scenes, etc.

All of these means of social expression have been illustrated, except dramatization.

Of social expression Mary Kelty says that conversational periods in which parallels to present problems can be drawn and previous experience recalled, give background to the poor reader. She also says,

However, in carrying on the general activities, drawing, painting, construction, dramatization, writing, trips, etc., associated with each unit, there is almost unlimited opportunity to provide for varying interests, talents, tastes, and degrees of ability. By working sometimes as individuals and sometimes as groups, all children can proceed through various ex-media of expression, as far as their capacity allows. . . . Such activities as these, it must be kept in mind, are actual means of securing social science experience; they are not merely devices for interesting or amusing children.³³

Peep shows and table scenes have been discussed in this chapter under the subhypothesis related to organizing data. Maps, charts and

³³Kelty, Mary, "Adjustment of the Materials of the Social Sciences to General Mental Development of Children in the Middle Grades," Educational Method, (New York: Bureau of Publications Teachers College, December 1936), XVI, p. 119.

graphs have been discussed in this chapter under the subhypothesis related to collecting data and in Chapter III, pages 85 and 94. Oral and written reports have been discussed many times. Particularly related to this subhypothesis is the subhypothesis related to evaluation, the part concerned with class evaluation of individual reports. This discussion gives the children's comments and also gives insights into some of the children's strengths and weaknesses, both the reporters and the critics.

Class planning and discussion has been illustrated with nearly every hypothesis. Particularly applicable to this subhypothesis are the accounts of the children planning the bee frieze and the India frieze. Morning exercises also gave the children experience in this skill.

Because of the teacher's long absence and consequently a hurried schedule there was only one opportunity for dramatization presented to the children. During the last two weeks of school the children were busy completing a set of finger puppets. It was hoped that the children would write a play and present it to another class. However, the children were so proud of their puppets that they wanted to take them right home, so they were allowed to.

It is concluded that evidence has been presented to show that social expression is strengthened through class discussion and planning, oral and written reports, drawings, dramatizations, map, graph, and chart making, and table scenes, and peep shows.

Summary

This chapter has been devoted to a discussion of better methods of teaching specific aspects of critical thinking. Illustrations, taken from the teacher's diary and from the children's folders, were presented in an effort to show that these methods which were described in the subhypotheses will strengthen skills in:

1. understanding printed materials,
2. defining the problem,
3. hypothesization,
4. collecting data,
5. evaluating data,
6. organization of data,
7. drawing conclusions,
8. verification,
9. social expression.

CHAPTER V

ATTITUDES, GRADE PLACEMENT AND PROGRESS IN STUDY SKILLS

Introduction

This chapter will be devoted to a discussion and evaluation of four related hypotheses. The first hypothesis is related to attitudes and conditions necessary for the promotion of desirable study skills. The second and third hypotheses are related to what progress can be expected in study skills. The last hypothesis deals with grade placement of specific study skills.

Attitudes Necessary for Study Skills

Some specific attitudes and conditions are necessary for maximum development of desirable study skills. (In a sense acquiring these attitudes are a part of the skills.)

Each subhypothesis will be repeated and discussed individually. In this way it will be made apparent what these attitudes and conditions are.

John Dewey in his book How to Think says of these attitudes:

As we shall see later, the most important factor in the training of good mental habits, consists in acquiring the attitude of suspended conclusion, and in mastering the various methods of searching for new materials to corroborate or to refute the first suggestions that occur. To maintain

the state of doubt and to carry on systematic and protracted inquiry--these are the essentials of thinking.¹

Relaxed Atmosphere and Democratic Procedure

The subhypothesis to be discussed in this section is that relaxed atmosphere and democratic procedure will aid the development of study skills.

a. Problems shall grow out of the experience of the children or some situation in relation to the children.

b. Children should feel free and be encouraged to ask thoughtful questions.

c. Children should regard cooperative thinking as one means of testing and evaluating individual thinking.

d. The child's personality must be preserved and developed.
(1) We must learn to subordinate his own ideas to others only after careful consideration.

e. Children must know when it is best to engage in physical activity and when it is best to refrain from such--and act accordingly.

f. Work should be arranged according to the individual's ability.

Each part of this subhypothesis will be discussed separately.

To clarify the meaning that lies behind the words democratic procedure, Julius Boraas' definition of faith in democracy should be considered.

Faith in democracy means essentially that if the common people are allowed to think and decide for themselves, they will gradually, through the method of 'trial and error,'

¹Dewey, John, *How to Think* (New York: D. C. Heath and Company, 1933), p. 13.

learn to think better and to select more wisely than they would before. Faith in democracy means that it is preferable that the people govern themselves though they do it poorly, if they improve thereby, and that it is undesirable that a people be governed by others, however well it may be done, if it hinders the development of that people toward self-government.²

Bessie Stillman lays the atmosphere of the classroom squarely upon the shoulders of the teacher and shows what a place of importance atmosphere holds in creating good habits of study. She says,

She must see to it, that the matter under consideration is worth discussing and is presented in an interesting manner. And for the atmosphere of the classroom, the responsibility is almost solely here. A caustic, sarcastic manner, or a weary mechanical tone will kill interest and initiative, and minimize all efforts to instill proper habits of study.³

John Michaelis has given some excellent indications of the kind of behavior that is consistent with democratic values:

In addition to using democratic values in the school program, the teacher must be aware of the kind of behavior which is consistent with democratic values. The teacher must be able to recognize democratic behavior in various situations in order to make effective plans, to guide children to higher levels of development, and to evaluate their growth. After all, the acid test of learning is the behavior of the child. Implicit in the preceding statement of democratic values and processes are the following general categories of behavior: social adjustment, cooperation, participation, self-direction, responsibility, open-mindedness, creativeness, concern for others, and group action.⁴

²Boraas, Julius, Teaching to Think (New York: Macmillan Company, 1922), p. 62.

³Stillman, Bessie W., Training Children to Study (New York: D. C. Heath and Company, 1928), p. 126.

⁴Michaelis, John U., Social Studies for Children in a Democracy (New York: Prentice-Hall, Inc., 1950), p. 36.

The atmosphere and procedure of the classroom has been discussed in previous chapters. It seems evident that the class planned friezes, the opening exercises, the class evaluation and other incidents described could not have occurred in a tense autocratic school room. How skills have been put into practice and thus strengthened has been described. It has been shown how children were free to move about the room to do reference work, study bulletin boards and maps, and to engage in such activity as map and graph making, finger painting, crafts and puppet making. If democratic procedure means developing initiative and independence, then child planned and child executed opening exercises create a democratic atmosphere at the beginning of the day.

If children are to use reference materials and so acquire that skill, there must be provision made for doing so. Then children must be free to go to source materials when there is a need for those materials. If children are to develop judgment in selecting information they must be free to question the accuracy of the information, just as Joe was when he asked if the book or the teacher was right in regard to the cow bird and yellow warbler. In like manner Freda, who was one of the two most shy children in the room in September, asked the teacher one day if she was sure she had spelled a word correctly on the board. The writer was copying guide words from a dictionary for an exercise in dictionary drill. The word in question was c-a-n-d-i-d. Freda said "Shouldn't that word be spelled c-a-n-d-i-e-d?" The writer told her that the word she was thinking about was spelled that way but that the word spelled c-a-n-d-i-d meant frank or honest.

There were a number of times when children came to the teacher about their grades. They were courteous and sincere in attitude. If time permitted, their folder was reviewed with them and an explanation of the evaluation was made. If time did not permit, it was explained that there was not time and a conference after school was suggested. In most of these occasions the child admitted that he had forgotten about certain tests or papers that were poor. On one or two occasions the teacher amended her evaluation.

In general every effort was made to have the children feel that the teacher was fair but was also capable of making mistakes. This attitude extended to parents as well. Forbearance in the case of one child, particularly, was well justified. This child presented some discipline problems at the beginning of school so that a parent-teacher conference was necessary. Knowing that the parent-teacher relationship had been troublesome the preceding year, the parent was made to feel that the teacher would be willing to go over half way in adjusting the child to the situation. The parent ended the conference quite pleased; the child consequently amended his attitude and not only did he improve in behavior but his mother became a staunch supporter of the teacher. She became a friend and was very helpful in many ways. As stated before, a more cooperative group of parents than those of this year have never been worked with.

a. Problems shall grow out of the experience of the child or some situation in relation of the child.

Linda B. Earhart, speaking of the source of problems, says, "But if the teacher can so direct the experience of his pupils that the problem arises in their own consciousness of need, then it is felt to be theirs and the situation is most favorable for thinking."⁵

Many, though not all, activities of the year grew out of situations related to the children. A great many grew from the needs of society. The teacher made an effort to incorporate both kinds of activities in the large units of work. Most of the handwork, integrated with mental work grew out of situations where children felt a need to express their ideas in graphic form. How these problems were solved has been illustrated in examples such as the India frieze, the peep shows and the simple problem of deciding how the peddler found the Kazaks.

It is the conclusion of the writer that content of the curriculum should be adjusted to the personal needs of the child. However, if one is to adhere strictly to this principle, one must be a superior teacher and be in a system where this principle guides the policy of schools, in providing material, time, and small number of pupils for each teacher. Since the teacher is limited by her ability and training and the system in which she teaches, she considers the needs of society as affecting the personal needs of the child in this particular situation, and thus she reconciles the seeming discrepancy. The best

⁵Earhart, Linda B., Teaching Children to Study (New York: Houghton Mifflin Company, 1909), p. 19.

learning situations have been where children have recognized their personal needs and have had the will to fulfill these needs.

b. Children should feel free and be encouraged to ask thoughtful questions.

Every effort was made to see that children felt free to ask questions. An illustration of a method used to encourage this is the rating sheet sent home to parents. (See Appendix B, item ten.) A mother commented on the sheet favorably and said that even though her child had been in the teacher's room the preceding year, it had never occurred to her that it was right for her to ask about things she had wondered about. Many incorrect or blurred conceptions were clarified by this means. Many children, at the close of discussions brought on by their questions, would give a happy sigh, as though relieved (though the teacher had not been aware of any tension before) and said, "I never understood that before." Molly would nearly always laugh and call attention to how mistaken her ideas had been.

From numerous observations it would seem that children do a great deal more real but frustrated thinking about school work than most teachers realize. Other examples of thoughtful questions are those that Joe asked when he thought he saw a queen bumble bee gathering honey in the fall (see page 92) and wondering how the peddler would find the Kazaks (see page 139). Often blurred or inaccurate concepts are clarified in this way. One day in the fall the noise in the lunch room and need for cooperation in this area were being discussed. It was pointed out that if the teacher had to get up six or seven times

during a meal to remind children to keep reasonably quiet that indigestion for the whole afternoon would result from hurrying through the meal. After using the word indigestion several times and not at all aware that there was anything wrong, Mary raised her hand and said, "Mrs. Merritt, do you mind telling us what indigestion is?"

Because many teachers have never helped children realize that they have a responsibility of expressing their thoughts, many splendid opportunities for providing for children's needs are never realized.

c. Children should regard cooperative thinking as one means of testing and evaluating individual thinking.

Julius Boraas says that one of the great advantages of group opinion is that it gives the individual an opportunity to compare his own with the group and that comparison of individual judgments stimulates vigorous thinking and discussion.⁶

This is certainly true and since both thinking and social expression are aims of the social studies it appears that all the time spent in class discussion was educationally justifiable.

The experience of the North Carolina "monster" story is an example of group thinking, superior in this case to individual thinking by those who were inclined to believe the story.

While pupil picture lectures were considered an activity conducted by an individual, if the lecturer was slow and unobservant the

⁶Boraas, Julius, Teaching to Think (New York: Macmillan Company, 1942), p. 72.

lecture was apt to turn into a group activity where the brighter students gave the benefit of their thinking to the slower pupils.

It is said that the truly educated person is modified by the group and at the same time seeks to modify the group.⁷ This was also true of the brighter pupils. They, through their suggestions, raised the entire level of thinking for the group.

An example of testing the individual's ideas is cited when the children were trying to decide which country to study next. James wanted to study South American countries. Many of the other children wanted to study India and China. Everyone had an opportunity of saying why they thought it would be best to study the country of their choosing. Class thinking developed the ideas that South American countries would be studied again in the sixth grade whereas India would not, and being so near to Egypt would cause similarities that would make the study easier now. James readily saw these reasons that he had overlooked before and changed his mind.

The same thing often happened when a chairman was being elected for frieze work or opening exercises. A child would nominate someone. Another child would nominate someone better fitted for the position. Though their qualifications were not usually discussed, it sometimes happened that the child who nominated did not vote for his nominee, after a few moments thought. One time someone nominated Julia for class chairman. She quickly suggested that it might be better to elect

⁷Witty, Paul, Reading and the Educative Process (Boston: Ginn and Company, 1939), p. 16.

someone who did not have as many responsibilities as she did at the moment. The child who nominated her withdrew his nomination. Several months later Julia was elected at a time when she did not have so many things to do.

As stated before, this class worked together exceptionally well and there was rarely any evidence of hurt feelings because of differing points of view. To avoid this the class was constantly reminded of the necessity of stating their opinions carefully and attempting to be unbiased in their viewpoint. If it appeared that a child was feeling a little alone in a discussion the teacher made a point of saying something in behalf of the child's idea and then pointed out that perhaps there was still a better idea to be suggested yet. One of the few occasions when this happened was when Pan was reading her report. She made a very erroneous statement. The class in an effort to set her right were a little less tactful than usual. Several children pointed out that the statement was beyond all reason. Tears welled in Pan's eyes for a moment, so the teacher drew the attention from Pan and the erroneous statement by commenting on the excellent way she had begun her report. Several other children made comments and in a matter of minutes Pan was smiling and volunteering that the statement that she had made was just a guess and not a very good one at that. These are the pitfalls children are apt to stumble on and it takes a watchful eye to guide group thinking around such episodes.

It is concluded that group discussion is invaluable. Not least of the benefits are that a bright child can amend group or individual

thinking at times better than the teacher can because of the kinship in viewpoint of children.

d. The child's personality must be preserved and developed.

(1) He must learn to subordinate his own ideas to others only after careful consideration.

Of the place of studying in personality Linda B. Earhart says,

In studying, it is an important consideration to preserve and develop one's personality, to exercise initiative, and not to subordinate one's own ideas to those of others without due consideration; otherwise one becomes a nonentity; a 'passive recipient' and the whole process of study loses its value as a means of training and as a means of arriving at truth.⁸

Whenever a rule had to be made, it was discussed with the children to make sure that it was not teacher imposed upon unthinking individuals or upon resentful thinking individuals. The teacher tried to use suggestions whenever made by children. However, if they could not be used, the reason was explained to the child and if possible worded in such a way that the child made the decision of rejection. As example, when J. D. wanted to make two friezes, both he and the class decided that it was a faulty suggestion.

Sometimes it is not possible to go into detail before directions are given a group but if one expects children to think and arrive at valid conclusions, it is wise to explain at the first opportunity. In the middle of winter a new teacher was added to our school. Through an error she was not assigned a gym period, so that her class arrived in

⁸Earhart, Linda B., Teaching Children to Study (New York: Houghton Mifflin Company, 1909), p. 54.

the gymnasium at almost the same time that the writer's room did. The teachers conferred for a few minutes. This fourth grade played for fifteen minutes and then were directed to quickly leave the gymnasium so that the other group would have time to play. Indignation ran high and all the way up the hall the teacher could hear, "It isn't fair! Why should we give up our play period!!" On arriving in the room it was explained that the other group had not been in the gymnasium for two weeks and that most days had been too bad to play on the playground. Frowns turned to smiles and everyone was agreeable.

There are times when children must be told what to do. Fourth grade is a transition grade where children are losing many of their baby ways and taking on more mature ones. It is not an easy thing to know just how much freedom to give a child. It is not easy to know just when to give freedom and just when to withdraw it. In most cases the children who had the most trouble were those from autocratic homes or homes where they were rarely expected to do anything other than play.

A discussion of preserving and developing children's personalities would not be complete without a description of two outstanding cases from this classroom. How these children's personalities were developed will now be presented.

Pansy was nine years, one month old in September. Her I.Q. was normal, ninety-nine. Her parents were of lower middle class social level. Her father worked at a laundry. Their home was shabby but neat, and clean. It was in a less desirable part of town. Pansy and her two older sisters were carefully supervised as to their associates. The

two older sisters were well, bright, attractive girls and were well thought of by their teachers and classmates.

Pansy's health, on the other hand, was a problem. She had been in the writer's third grade the preceding year and had missed many days, due to colds and childhood diseases. She was a tall, thin child, whose face was often white and whose hair was either lank or frizzy by turn. When she spoke, which was a little as possible, her voice was so low it could scarcely be heard. She seldom smiled. Up until early spring of last year, when the teacher would question Pansy about any school work, she would give a standard reply, "I don't know." Her oral reading was smooth but expressionless. Written work was fair. She refused to take part in opening exercises although she was asked. The teacher did not insist, for the third grade were outnumbered two to one by the fourth grade, and it was felt that this might add to Pansy's timidity.

The teacher urged every activity that required any movement at all upon Pansy. After a time she adjusted so that she would take part in the art activities provided it did not require that she speak to the class as a whole or to the teacher. The teacher commended any effort that she showed but was only rewarded with a wan smile. It was a year that presented many problems and though the teacher never forgot Pansy she did almost lose sight of her at times. By spring Pansy would attempt to answer questions most of the time but usually the answers were vague or inaccurate.

By last September Pansy would talk, but still could scarcely be heard. She had formed several close friendships, it was noted with

pleasure. Her work was of rather poor quality; although she answered questions, the answers were still vague. If the question required a subjective answer, she would say that she didn't know. One means to be certain of failure was to ask her what she thought about something. She would register confusion immediately and say she did not know.

All the time her friendship with several little girls was growing. The sociometric test shows she received three choices, but she was often chosen by these children to study or help in room duties. She would never ask to dust or water flowers but some other child would ask for her. After a time the teacher would smile and say, "Pansy may dust if she will ask me."

The first two report cards of Pansy's showed C's and D's. Some of the C's were listed out of consideration for Pansy. Her work was definitely below average. At the second card Pansy's mother wrote a reply to the teacher's note on the card. The teacher had commented that Pansy was a sweet, well-behaved child. The mother wrote that she was glad to hear it. She had been concerned over Pansy's low grades; she really studied harder than her two sisters who made good grades. The teacher's reply seemed to mark a milestone in Pansy's career. The parent was told that it was understood that Pansy studied and that giving Pansy low grades really hurt the teacher. Pansy's health was a partial cause of her shyness. When the teacher had been a child both ill health and shyness were experienced. It was believed if Pansy could overcome her shyness she would be a very good student. Next day Pansy held up her hand to answer some questions. She smiled after this and although she still spoke too low, she at least spoke.

Things improved for a while but when the teacher returned after an absence Pansy had slipped back into her old reticence again. The substitute teacher had commented on the child being sweet, but had made no reference as to her work. By the time she seemed to improve a little the regular teacher was absent again. On the teacher's return much thought and effort were centered on Pansy. She called on her for everything, to do things, to say things, to get things. Pansy began to slowly pull out of the doldrums. She seemed happy although still too silent. When she was one of the first to learn the multiplication tables the teacher made much of it. An opportunity to commend Pansy was never overlooked. She was sent on errands.

She raised her report card grades even though most of the work was still poor. At the end of school she was doing all C work except A in arithmetic. She could never master the higher thought processes, but she seemed genuinely happy. She smiled and laughed and even talked to the teacher occasionally.

The crowning glory came when Pansy was elected to preside at opening exercises the last month of school. This she did efficiently. She never forgot to make plans ahead, and in the event that someone was absent the morning they were to report she hurried about and got someone else to take their place. A week before school closed she brought a camera to school and had her picture taken with the teacher. When the film was developed she proudly posted the picture on the bulletin board. With her happiness Pansy's looks seemed to improve. Her skin took on a glow and her hair seemed to be more ruly. It appeared that the close of school found Pansy a happy little girl.

The second case is Freda. She also was a shy child but she was little and she was young--seven years, six months in September. She was an only child. Her people were of the upper middle class social level. Her father worked for the Tennessee Valley Authority and her mother wrote articles for magazines and was attending the University at the time Freda was in the fourth grade.

Freda's health presented no problems but she was very shy. She had entered public school the preceding year. The third grade teacher said that her work had been good but that she rarely spoke or took part in classroom activities. Once she had consented to play the piano for the class but she never would hold up her art work or any other for the class to see.

Freda's I.Q. was 139 by the Otis Self-Administering Test of Mental Ability which was administered in the fall. At the time she had entered public school an achievement test had been administered to her in the Education office. She had rated Fourth Grade level but had been put in third grade in order to help her adjust socially. Her lessons were never a problem. She averaged A work.

In the first few days of school the teacher tried to draw her out in conversation but she remained reticent. Whenever it was possible the teacher identified herself with the child, referring to interests and friends they had in common. She rarely left her seat or spoke to the other children. On the playground she stood and watched the other children. If it was suggested that she join them she shook her head. The teacher then tried having some child ask her to play with them

alone. This she did though it was a long time before she joined the group. Three little girls whom the teacher had taught the preceding year seemed to realize what the teacher was trying to do. They would say, "There is Freda alone again. I guess I'll go get her."

In October when the children were making jack-o-lanterns of papier-mache over balloons the teacher suggested that Freda bring a balloon. She said she didn't want to. Another child said she would be glad to give her one but Freda maintained she did not want to make a jack-o-lantern. The teacher brushed her protests aside, took her hand and led her to the work table. Here she was shown how to do the work and left alone. In a few minutes Freda said something to a child sitting nearby. This child said, "Freda says it more fun than she thought it would be," and Freda giggled happily. After this Freda engaged in many art activities provided the material was furnished by the school or some other child.

Each class shares a piano with two other classes so that the piano was in each room every third week. The first time it was in the fourth grade room many of the children were anxious to play for their classmates. Freda was asked to play but she refused. The next time the piano was in the room again Freda was asked to play. She said she didn't have her music. The teacher suggested that she bring her music the next morning. Freda said that she couldn't but the teacher again brushed her protests aside and said they would plan to hear Freda play at opening exercises. Later Freda's mother told the teacher that Freda had had difficulty going to sleep the night before she played, and had

risen early to practice a piece that she already knew perfectly. When she played for the class, they broke into applause. Thereafter they always clapped when Freda played. It was as though they all wanted her to overcome her timidity.

When Freda read her first report, it was excellent. The teacher suggested that she go to the fifth grade and read it, but Freda refused. The next report the same suggestion was made. Again she refused, so no more was said until all the children had reported. Then several children were sent to report to the fifth grade. Freda was among them. She went but a for a few minutes it seemed as though she might turn back before she had reached the door. Several reports later, Freda was again asked to read her report for the fifth grade. Here the teacher gave her a gentle push toward the door and said, "Of course you are going." Freda gave a broad grin, hesitated, started to the door, turned and spoke to Elizabeth. Elizabeth said, "Mrs. Merritt, Freda's timid. Let me go with her. I'm timid too; I'll be good for her." So the two went to the fifth grade.

After this Freda seemed to be more at ease. She made a few friends, smiled more and addressed the teacher more often.

She read the Bible at opening exercises and though she still spoke too softly she did very well.

One day when the other children were asking to play the piano Freda raised her hand. The teacher felt this was a milestone for her. After that she usually played at some time that the piano was available.

As she became more at ease her sense of humor became apparent. She laughed over funny things in books and made pertinent suggestions about them. One day in reading class when the children were reading about Australia, she said quite seriously, "Mrs. Merritt, what was the biggest island in the world before Australia was discovered?" The teacher said that she didn't know when Australia was discovered. It might be Greenland. Then Freda, her eyes dancing with merriment said, "Why Australia, of course!" The class joined in laughing at the teacher and the teacher breathed a sigh of relief.

When the teacher was confined to her home with the injury previously spoken of, Freda, her mother and her father came to see her. It was surprising how fluently Freda talked in the company of adults. She played several pieces on the piano and seemed quite at ease.

One day in the lunch room, after the teacher had returned to school, she was surprised to look up and see Freda playing tag around the tables, much to the surprise of the teacher, since it was a thing strictly forbidden in the lunch room. The teacher walked back to the table and said, "You girls come see me this afternoon." When the children were lining up to go home someone asked incredulously did Freda have to stay in. The teacher replied in a matter of fact manner that she did. In the conference that followed Freda said that the other little girl had made her run. She was reminded that every person is responsible for their own behavior in the fourth grade. It was some time before the teacher had an opportunity to talk to Freda's mother. Freda's mother was told that whereas keeping children in had always

been dreaded it was great pleasure that Freda had felt free enough to misbehave. Her mother said that she had been so pleased that she had called her sister on the telephone to tell her that her child had misbehaved at school.

Freda's mother was one of the teacher's staunchest supporters and did many nice things for the class in the course of the year. It was she who arranged for Mr. Kamel, the exchange student, to visit the school.

By early spring Freda was playing on the playground, happy and rowdy. She volunteered for many responsibilities and was a respected member of the group. She even had a spat or two with one or two of the children.

When the class made puppets she brought several egg shells to school to convert into puppet heads. Her mother said she had made several at home while the work was under way.

The last week of school one of the children gave a class party at his home. The teacher took several children in her car, Freda among them. When the children were taken home, Freda was the last. As they arrived at Freda's home she said, "Won't you come in and speak to my mother?" When it was explained that the teacher must go home Freda said, "Well, then do come in and see my playhouse!" So of course the teacher did.

Freda's mother told the teacher that Freda began bringing friends home from school about Christmas, something she had not done before.

Freda was elected to preside at opening exercises the month before Pansy was. She did very well and even spoke quite clearly and loud enough.

Freda's case is one of the most pleasant to deal with. It is believed that neither of these children would have made the adjustment in an autocratic environment.

There is great need for research in this particular phase of teaching at this grade level. Much is written about the junior high level, which is recognized as a transition level, but very very little about this grade level was found.

e. Children must know when it is best to engage in physical activity and when it is best to refrain from such, and act accordingly.

With some groups classroom management is more difficult because liberty is sometimes mistaken for license. However, with this group, once the rule that only four could congregate at any one center of interest had been explained and accepted by the group, not a great deal of trouble followed. Sometimes when several worked on one project such as the peep shows things got pretty noisy but at such times arrangements were made to have no studying going on. Most hand activities like frieze, finger painting, and papier-mache were conducted while some children were studying and the teacher was working with a small group. Most of the children learned to go quietly about such activities as, housekeeping, map discussion, and bulletin board observations. Often, some child who had volunteered to quiz the group or give a picture lecture would ask to sit in the hall where he could talk to a companion without disturbing anyone.

John Michaelis says,

In the social studies, the teacher guides children in becoming more self-directive as they engage in construction, dramatic play, research activities, planning, discussion, and the many other situations that arise. The acceptance and discharge of responsibility is an essential element in democratic behavior.⁹

An attempt was made to help children understand that moving quietly about the room was not something imposed simply because "this is school," but that it was just a form of consideration for others who are working. Most of the children understood this. In the main they were cooperative. Robert was the great exception. He not only refused to cooperate with class rules of moving about quietly and not doing "the extra things" (as the children call most physical activities) until assignments had been completed. He resented to the extent of name calling, being told to do anything or refrain from doing anything. This antagonism became apparent around January and steadily got worse till a few weeks before school was out. If democratic procedure helped him, it is terrible to think what autocratic procedure would have done for him. Pupil conference, child-parent conference and teacher-parent conference were arranged to determine the cause of this antisocial behavior. Some conclusions were reached as to the probable cause of his antagonism but the situation was never quite adequately handled.

This is not to imply democratic procedure is considered a failure. Handling this particular child was not a success, but it is concluded that this cooperation of the group as a whole speaks well for

⁹Michaelis, John U., Social Studies for Children in a Democracy (New York: Prentice-Hall, Inc., 1950), p. 39.

democratic procedure since free activity is often a problem in some school rooms.

f. Work should be arranged according to the individual's ability.

This part of the subhypothesis related to democratic procedure, is closely related to the last two parts just discussed.

Taking care of individual differences goes a long way toward enlisting a child's cooperation and the development of initiative.

Mary Kelty says,

Some system of combined group and individual progress is needed, built around a central topic, theme or movement, in order to secure a degree of unity. This principle in itself sets a limitation upon the central theme; there is obviously no advantage in choosing a theme for which a large section of the group is completely unready. Each unit of work chosen must be capable of being analyzed into several degrees of maturity of thought processes involved, so that every pupil, whether in the fourth grade or eighth, can begin at the level of adjustment of which he is capable, and can advance in his method of treating the topic as fast and as far as his ability and his rate of maturing permit.¹⁰

She says that in providing the wide range of ability,

. . . even wide reading will not stretch their ability sufficiently. They are ready to exercise the so-called 'higher' thought processes of judgment and reasoning about the unit movement under consideration. They are ready to compare and contrast, to draw inference, to analyze, and synthesize, to formulate and apply generalizations, and even to comprehend some of the simpler processes of historical evidence.

¹⁰Kelty, Mary, "Adjustment of the Materials of the Social Sciences to General Mental Development of Children in the Middle Grades," Educational Method XVI (New York: Bureau of Publication--Teacher's College, December 1936), p. 116.

She lists means for caring for individual differences as (1) visual aids, (2) guiding reading of better pupils with study guide questions, (3) teach poor readers and lower ability how to read functional materials through (a) conversational periods in which parallels to present problems can be drawn and previous experiences recalled-- gives background, (b) read story orally before child tackles it, (c) expressional activity, (d) setting the first standard of attainment at an attainable goal has helped, (e) discussion of reading helps determine misconception, (f) vocabulary study.¹¹

All of these means of providing for individual abilities were used. Arranging work according to the individual's ability is one of the most difficult feats of teaching. In this respect, the writer did a poor job in teaching children to select the main idea. Evidence of this failure is the fact that none of the children in the last reading group and some of the children in the middle reading group seemed to make little progress in the accuracy of their selection. It may be that this was an activity that should not have been required of them. On the other hand, it may be that simpler material should have been used with these children. It is a matter for further experimentation.

It is concluded that the means of making reports is one excellent way to consider the ability of all. Poor readers had the choice of easy reading material, their ability was taken into consideration in what was expected of them. For an example of a contrast between what

¹¹Ibid., p. 17.

is expected of children of lower ability and higher ability, see Appendices EE and G or P. Picture lectures gave them an opportunity to contribute to the group. When grades were discussed it was always emphasized that Reading Class Three should not be expected to read as much as Class One. At the same time it was usually arranged that Class Three had more time to prepare an assignment in the content subjects than the other two classes.

It is concluded that democratic procedures are the only means of really taking care of individual differences.

Interest in the Problem or Material to be Handled is Necessary

Every effort was made to see that material was always presented in the most interesting manner. Several parents commented on the back of the questionnaire that their children were more interested in their work than they had ever been, due they felt, to the manner in which it was presented. Assignments were varied and interspersed with moving pictures, film strips, and picture lectures. The work was usually enhanced and made more interesting by a great deal of art work. (See Appendix D for children's responses to the questionnaire.) The children, both in this class and those who passed the door seemed to feel that making maps, both relief and flat, were very interesting. It was noticed that children from other rooms liked to come in and browse around at recess and after school. They would say, "Your room is so pretty." Or, "You do so many interesting things." That intangible term "atmosphere" seemed to enter into the interest of the group. The

problem approach and reference work doubtless made things more interesting. One mother wrote, "You make things so interesting. A unit in your room is just like taking a trip to a foreign land." This is an exaggerated statement, but it does show that the parent appreciated the effort that was exerted to create interest. One parent writing of her child's improvement after a lag and her joy because of it said,

He is all pepped up again. You make things so interesting for them I don't know why his interest would ever lag. . . . I tried to get over the fact that it wasn't his grades I was primarily concerned with; it was his failure to grasp and to take advantage of these new and interesting ideas that will help him now and prepare him for fifth and sixth grades.

Interest, it appears, like critical thinking is contagious. Since the teacher was vitally interested in the work and the children, some of it was bound to rub off on the more responsive children. Several parents commented that the news items, reports, and the time to show things of interest in the morning, added so much to the day's work. Others thought the vocabulary study was something to create interest.

Geroldine's mother said in a note that she thought allowing children to do "the extra" things when their assignment was complete had kept her child interested. Gene's mother said that this is the first time he has ever even mentioned school happenings. "He tells me just about everything you say, even the comments you make on the movies you show." A mother wrote, "I notice you are not always telling children what to learn, but how to learn." This parent was not of this year's group, but many of the activities that were carried on this year were being tried out last year. Indeed, it was this comment that started the writer on the quest for better teaching methods for study skills.

At all times children were urged to improve their past record and it was evident that many children did just this. Sometimes after a report had been given a child would come to the teacher's desk and say, "This was better than last time, wasn't it?" At class evaluation children would often comment, "You did much better than last time." Or, "Last time you made a terrible mess. This is good." At such times the remarks were not resented.

While the writer strove to make the presentation of material interesting, Bessie Stillman's advice was also followed:

There are many attitudes besides suspension of judgment, initiative, perseverance to which reference has continually been made, which it is the teacher's duty to develop in the child. But greater still is her obligation to train her pupils to foster these in themselves. Repeatedly do child students need to be reminded of the possibility of making themselves interested in required material which may at first seem dull, and of their responsibility for doing so.¹²

The vocabulary study is an example of this. Some children found it dull at first and saw no reason for it. Later they admitted that it made things much more interesting.

An account of things that make for interest would not be complete without taking into account the pupil-teacher relationship. The teacher can truthfully say that, as exasperated as situations become at times, every child in the room was truly loved. Also it is sincerely believed every child in the room returned that love--even Robert who one day, in a fit of rage, called the teacher a "bald headed old ape." Actually, he

¹²Stillman, Bessie W., Training Children to Study (New York: D. C. Heath and Company, 1928), p. 235.

seemed to like her most of the time.

At this age level many boys think it beneath their dignity to show affection. One day the teacher was surprised and quite touched at the simplicity and affection that J. C. evinced. J. C. was a child who found it very difficult to take any responsibility about his work. He came to the fourth grade unprepared and immature. Shy by nature, he rarely addressed the teacher until several months had passed. Even then the teacher had never been sure how she stood in J. C.'s estimation. Because of his irresponsibility and the necessity of prodding him often, the writer at times wondered if she seemed like a nagging old "school marm" to him. Shortly after one of the name calling episodes, Robert practically fell over several chairs in his haste to sit by the teacher in the reading circle. She smiling and somewhat teasingly said, "Well, imagine that! Robert wants to sit by the teacher. I thought you didn't like me!" Robert giggled as did most of the children. J. C., however, was quite serious and apparently missed the point. He leaned back in his chair and quite clearly addressed nobody in particular, "I love Mrs. Merritt." Not a child laughed and several nodded their heads quite seriously.

John Dewey says, "Everything the teacher does as well as the manner in which he does it incites the child to respond in some way or other, and each response tends to set the child's attitude in some way or other."¹³

¹³Dewey, John, How to Think (New York: D. C. Heath and Company, 1933), p. 47.

The feeling connected with interest seemed to be a composite thing, not just any one element. It is probably best stated by Sue. She said one day, as the teacher was helping her make a papier-mache rabbit, "How do you think of so many nice things for us to do?" The writer said, "What things, Sue." She answered, "I don't know. Just everything!"

The writer concludes from observation, her diary, and parents' comments that her school program was a success to the extent that it aroused and maintained interest in her pupils by methods described in these pages.

Vigorous Application of Energy

Vigorous application of one's energies are necessary for maximum development of study skills.

Frank Thomas lists vigorous and sustained effort as one of the most necessary conditions for study.¹⁴ From observation of years it seems that it is one of the outstanding causes of poor work. Like interest it is something with which the child must take some initiative. The children were told often that it was very important to begin promptly and stay with it till the job was done. Another slogan that was coined by the class was "Well begun is half done." A parent wrote of her child, "There is still room for improvement but he has surely though slowly learned that procrastination does not pay." This was of a child who simply did not turn in a required written report. The fact

¹⁴Thomas, Frank W., Training for Effective Study (New York: Houghton Mifflin Company, 1922), p. 10.

had been reported to his mother. The next report had brought favorable comment by a note to his mother. This comment had been her reply.

Bessie Stillman lists perseverance as one of the attitudes necessary for study.¹⁵ Some of the slower students were inclined at first to be satisfied with one reference book if another was not immediately available. Children were allowed to take library books home for one night at a time. This was a rule because it enabled all children to use the material in this way. If a child found that he could not cover the material in a book in one evening he could return the book on entering the room and place "R" after his name, signifying that he was reserving the book for the following evening. In this way other children had the use of the book during the day. However, he could not reserve the book more than once successively. Also children were not allowed to keep books of this kind in their desk when not actually in use. It is believed that these rules foster the necessary attitudes of consideration of others.

On several occasions children showed ingenuity in sharing books. Sometimes a child would ask the teacher to arrange her reading classes in a certain order so that several people who all wanted the same book might have a chance to use it. At other times they asked for the order of committees reporting be reversed in order to use some book that was particularly good for two or more committees. As the year progressed it was observed that the group as a whole was learning patience and perseverance in the joint use of reference material.

¹⁵Stillman, Bessie, Training Children to Study (New York: D. C. Heath and Company, 1928), p. 235.

The children were reminded that it is not enough just to begin. One must work at a thing with determination to accomplish any worthwhile goal. Particular effort was made to see that a child who had tried hard felt rewarded for his effort even though the result might not be of the same quality of brighter pupils. This was done by favorable comments both to the child and to his parents. If a child had worked hard and a test grade had been low, the teacher made a point of commenting on the paper that she knew the child had tried and that it was not the grade that really counts. Nevertheless, when a bright pupil was inclined to coast through on the strength of his superior ability, she did not hesitate to also comment to the child and his parents that he was not living up to his ability. People often say that all children should be treated alike in order that none will be considered favorites of the teacher. This is a fallacy. The writer's experience proves this. Children should be treated according to their own particular personality. The writer has always tried to do this and very very rarely has it been misunderstood.

In the report to parents (see Appendix B, item 4) this item aroused a great many comments. One parent said that her child's attention span had grown tremendously. She said that until she had had this report she had never realized how poor was his power of concentration. She had been working at home too with him and that she felt very grateful for this observation on the part of the teacher. She also felt that interest had been one of the contributing factors in his growth.

The writer concludes that there are many ways of fostering vigorous application of energy. Most outstanding and obvious are adjusting the program to individual differences and resulting interest. Interest in its turn is fostered by adjustment of the program and other methods discussed under the subhypothesis related to interest.

Sources of Information as a Means to an End

Children must regard textbooks and all other sources of information as a means to an end.

It was the aim of the teacher to emphasize this consideration, by example of her own attitude. To begin with the text was not used in the social studies until one large unit had been completed. In none of the other fields was the order of the book followed except the spelling text. The fact that no one book gave a complete answer to their questions also emphasized the point. For instance, the children set out to find how climate and location affects food, clothing, and shelter in India. The purpose of the text writer and the purpose of the children were not the same. The children were interested in India as a whole. The writer of the text presented life in only an isolated rural area. Some reference material discussed one part of India, some another. Some magazines gave both pictures and written material on sections of the Himalaya Mountains.

By use of all possible sources of information, interviews, books, pictures, and movies, and the problem approach, the desired attitude was engendered in the class, it is concluded.

Major and Minor Importance of Books

Children must regard books as being made up of major and minor importance.

Over and over the children were told that they were not expected to learn everything in any book. Through discussion the idea was brought out that since one can't learn everything, it is sensible to learn the important things. It was also shown how if "big ideas" are learned the "little ones" usually are remembered without effort. For example if one learns what conservation is and its purpose, one just naturally remembers some of the means of conservation. Also if the fact that erosion is the wearing away of the soil is learned it is an easy matter to remember the two main agents of erosion, wind and water. As stated before, selecting the main idea is a difficult skill for immature children. However, by the end of the year all children had learned that bold face print and pictures usually portray the main ideas of a book.

That main ideas exist was common knowledge; selecting them was another matter.

Author's Specific Viewpoint in Writing a Book

Children must regard the author of a book as having a specific point of view, a personal bias, and subject to error.

T. L. Kelley and A. C. Krey in their book, Tests and Measurements in the Social Studies, state that all information is relative. Children must learn that the reporter is as important as the report.¹⁶

¹⁶Kelley, T. L., and Krey, A. C., Tests and Measurements in the Social Studies (New York: Scribner, 1934), p. 62.

Claude Crawford states that in the better way of teaching "a thing is no longer true merely because the book or teacher says so. There are and should be different opinions."¹⁷

Joe found this true when he found the book that told that the yellow warbler could distinguish their eggs from eggs of the cow bird.

The children found it true when they found two books differed in the number of religions in India.

Linda B. Earhart chose the sixth grade to test 1,100 children in an experiment related to the teaching of geography. She found that they were unable to exercise doubt about the accuracy of subject matter.¹⁸ The children of this fourth grade were only able to refer to the publication date to evaluate many statements where time would have effected the accuracy of the statement. They realized that some books such as National Geographic and encyclopedias were usually dependable and that comic books could not be depended upon. This was about the extent of their judgment ability.

When Geroldine was reading her report on religions she said, "My encyclopedia says there are five religions of India but Julia found a book that said there are seventy-five." The child was told that in general, recently edited encyclopedias were more reliable than many books. However, the encyclopedia had probably meant that there were five main religions and that both books could be right.

¹⁷Crawford, Claude C., Teaching the Social Studies (Los Angeles, California: University of Southern California, 1932), p. 146.

¹⁸Earhart, Linda B., Teaching Children to Study (New York: Houghton Mifflin, 1909), p. 127.

It appears that this attitude can be engendered in children but that research should be done in determining what criteria for evaluation could be given children of this age level.

Critical Attitudes Toward One's Self

Children must have a critical attitude toward themselves as well as others.

Julius Boraas said, "Children must learn to question their own judgment. We must do this in life before someone else does."¹⁹

With children there is the problem of their being either over or under critical of themselves. Experience and maturity seem to be the answer to the problem, but children of this age level have not much of either of these benefits.

As mentioned before, the better students tended to be more accurate in their evaluation of their work. This attitude is closely related to the hypothesis concerned with evaluation.

It was found that discussion of this attitude tended to make the conscientious child overly critical of himself and did not phase the children for whom it was intended. The situation was remedied by helping those children who were over-critical of themselves to appreciate some of their own good points. Sometimes comments were made on these points to the child himself and sometimes to his classmates.

By class criticism of reports, by self-evaluation sheets, and teacher-pupil conference, an attempt was made to engender in the pupils, the attitudes of self criticism to a desirable degree.

¹⁹Boraas, Julius, Teaching to Think (New York: Macmillan Company, 1922), p. 46.

It is evident that a child who learns to be critical of himself must learn to face both his strengths and weaknesses. Therein lies the proper balance. Both experience and maturity are required for maximum development of this attitude and the surface can only be scratched in the lower grades.

Means of Training for Work in Study Skills
and A Criteria for Good Teaching

The teacher must regard subject matter of instruction as a means of training for work in study skills.

The teacher must regard what the children are doing in class as a criteria for good teaching.

These two hypotheses will be discussed at the same time.

P. J. Zimmers in his study of school methods gave as bases for judging classroom instruction "(1) provision for developing initiative, independence and self-activity in pupils, (2) important things is not what the teacher is doing but what the children are doing."²⁰

It was found that initiative could be developed through pupil activity. To this end the item "Asks for help only when he needs it" was included as one of the points of evaluation. (See Appendix B, item seven.) The pupil lectures, pupil planned activities, and morning exercises were also methods used to this end. All subject matter was regarded as a vehicle to forward study skills. However, an attempt was made to properly balance skills and subject matter in the curriculum, and to this end many subject matter tests were given.

²⁰Zimmers, P. J., Teaching Boys and Girls How to Study (Madison, Wisconsin: Parker Educational Company, 1917), p. 16.

It appears that the reason a teacher must center her concern on what children are doing as a criteria for classroom performance, is that in so doing she is recognizing the dignity and worth of the individual. The individual is worthy of self government. Therefore, he must have experience in self government and initiative as a means of training. It has often been said, "We learn to do, by doing." That is, by doing in reference to a goal or a standard. That goal, in this case, is democracy. This does not mean that the teacher has no important part to play. She is important, and she has a contribution to make to the group, as a participating member of the group. The teacher should supplement the child's initiative and independence with her maturity and experience. She is not the source of all knowledge, power and judgment, but she is a source of knowledge, power and judgment. She is there to train for independence, initiative, and self direction, but when a child through immaturity or lack of experience and training shows a lack of these qualities, she must take over until such time as the child may show evidence of these qualities in varying degrees.

Good Physical Conditions

Good physical conditions of the room are necessary for maximum development of study skills, such as heat, ventilation, lighting. This needs little discussion other than to say ventilation was the only real problem of this classroom. This was taken care of as best as could be managed with the structure of the room. Seats were arranged informally. Children moved them to suit their purposes. Tables and chairs were in

use so that several children could push their tables together if need for more work space was evident. In most cases they were of the right height. However, among the larger children this worked a hardship. Since seating equipment has been a problem with the school, no larger seats were available. The situation was remedied as far as possible by allowing free movement in the room. In the case of a tall child, he moved his table to the side of the room where his legs could stretch out at will without bumping the child opposite him or tripping a child passing.

Suspension of Judgment as a Necessary Part of Effective Study

John Dewey says,

Reflective thinking is always more or less troublesome because it involves overcoming the inertia that inclines one to accept suggestions at their face value; it involves a willingness to endure a condition of mental unrest and disturbance. Reflective thinking, in short, means judgment suspended during further inquiry; and suspense is likely to be somewhat painful. As we shall see later, the most important factor in the training of good mental habits consists in acquiring the attitude of suspended conclusions and in mastering the various methods of searching for new materials to corroborate or to refute the first suggestions that occur. To maintain the state of doubt and to carry on systematic and protracted inquiry--these are the essentials of thinking.²¹

The children of this study were urged to never "jump to conclusions" in any of their work until they had consulted all sources of information. The issue did not pose itself as a great problem, possibly from faulty perception of the teacher.

²¹Dewey, John, How to Think (New York: D. C. Heath and Company, 1933), p. 13.

Roy C. Bryan gives one caution to those who would suspend judgment. He says, "An open mind is a rare virtue so long as it does not prevent us from acting with our own best judgment when events demand action."²²

It was discussed with the children that where they had no means of verifying their opinions they should decide what was probably so. Such was the case in the North Carolina "monster" story. In this case the problem was resolved in a short time.

The most natural situations which arose that required suspension of judgment were pupil-pupil relationships and teacher-pupil relationships. Little fusses were apt to occur such as when by mistake someone took a book that had been reserved by someone else, or someone got hurt unintentionally. At such times the teacher intervened and quieted everyone till the true intent could be brought to light. The same thing was true of the teacher. On occasions pupils were misjudged from lack of adequate inquiry. It must be added that on such occasions amends were quickly made.

It appears that failing to suspend judgment is a human frailty and that training toward that end is the responsibility of both parent and teacher.

Effective Use of Time

The child must use study time effectively.

a. meet study obligations promptly

²²Bryan, Roy C., Seven Rules for Clear Thinking (Ann Arbor, Michigan: Edwards Bros., Inc., 1947), p. 22.

- b. carry work through to completion
- c. ask for help only when he can help himself no longer.

E. R. Smith and Ralph W. Tyler list as effective use of study time:

1. Habit of using large blocks of free time effectively.
2. Habit of budgeting his time.
3. Habit of sustained application rather than working sporadically.
4. Habit of meeting promptly study obligations.
5. Habit of carrying work through to completion.²³

All these phases of using study time effectively are consistent with democratic principles. They are the kind of behavior one expects as a result of democratic procedure.

Every effort was made to help the children through discussion to see that there were means for them to become independent. Time was taken to impress upon them that this was a responsibility that they should assume and not wait for their parents to prod them.

Parents' help was enlisted through reporting to them the strengths and weaknesses of their children in wise use of study time. Some of the other methods used to bring this about have been discussed in this chapter.

In Chapter III it was pointed out that many parents reported to the teacher that their children were improving in this respect.

It appears that this wise use of study time is prerequisite to development of many of the other study skills.

²³Smith, E. R., and Tyler, Ralph W., Appraising and Recording Student Progress (New York: Harper Brothers), pp. 31-33.

Summary

Specific attitudes and conditions have been listed and illustrated to show that they are necessary for maximum development of desirable study skills. The conditions are relaxed atmosphere, democratic procedure, good physical conditions, and meeting study obligations effectively. The attitudes are interest and application, suspension of judgment, and critical thinking toward books, authors, and self.

Extent and Speed of Study Skills Development

All children will not develop study skills at the same speed or to the same extent.

Mary Kelty says, "It is evident that pupil progress will be uneven and that results will vary in excellence, for growth takes place differently among different individuals, even among those who are ready to attack such problems at all."²⁴

This is consistent with democratic principles. Each individual has a contribution to make, but each contribution varies in quality and quantity according to ability.

John Michaelis gives characteristics of children in the intermediate grades and says that among the implications of these

²⁴Kelty, Mary, "Adjustment of the Materials of the Social Sciences to General Mental Development of Children in the Middle Grades," Educational Method XVI (New York: Published by Bureau of Publication--Teacher's College, December 1936), p. 118.

characteristics, "provision should be made for an increasing range of individual differences in all phases of the program."²⁵

This hypothesis is so related to the next that a discussion of the two together will follow restatement of that hypothesis.

Progress in Study Skills

All children will show some progress in some skills.

This hypothesis is also consistent with democratic principles and values. Group activity benefits both the group and the individual.

The Steck total test scores as presented in Table III indicate a range of gain from one to thirty-eight points. It shows that one child made no progress. However, this test does not cover all the attitudes and skills, discussed in this study. It so happens that this particular child's mother had a long parent-teacher conference, in which she verified by illustrations that the child had progressed in many respects. The Iowa test is not so convincing, however. Here too, no attitudes were tested and many skills were not tested. Indeed, no tests for attitudes were found on the lower grade level. The range of gain is from a loss of seven months to a gain of three grades, seven months. This test has been questioned as to reliability, because of its inconsistency with results of the Steck and My Weekly Reader test. The gain according to My Weekly Reader, which tests only four reading skills, has a range of from four months to one grade one month. This test only

²⁵Michaelis, John U., Social Studies for Children in a Democracy (New York: Prentice-Hall Inc., 1950), p. 73.

rates a child through the sixth grade so that it is possible that the range of gain is even higher. A review of parents' responses to questionnaires shows that all parents felt that their children had profited in some respect from the intensive work on study skills. It is concluded that all children made some progress in varying amounts, in attitudes and skills described in this study.

Summary

Evidence that all children have progressed in some study skills and the accompanying attitudes, in varying amounts, has been presented. This evidence is Steck Test of Study Skills, Iowa Every-Pupil Work-Study Skills, and My Weekly Reader test. Parents' opinion and teacher opinion have been given as evidence. Though some of this evidence is not conclusive (the Iowa test) the writer concludes from the consistency of the other evidences that all children have made progress under methods described in this study.

Grade Placement of Study Skills

The teaching of some skills should be postponed to higher grades due to the lack of need for those skills in the fourth grade and to the immaturity of children at that age level.

The writer has taught the fourth grade for a total of six years. In that length of time it has been found that a large percentage of children find pronouncing words from the dictionary a very difficult

task. It is possible that readiness activities such as placing the accent mark on known words and others should be the concern of the fourth grade with a little individual instruction for the gifted children.

The seeming inability of the children to (1) identify assumptions, (2) identify statements that play on emotional bias, (3) identify appeal to authority, (4) suspension of judgment, may have been due to ineffectual methods used by the teacher. Thus it cannot be positively said these things should be postponed to a later grade but it appears that these things do not press themselves upon this level of learning. In most cases it seems that an artificial situation would have to be set up to utilize these techniques.

It is recognized that lack of experience and training in teaching these skills mentioned above would tend to make it appear that they are too difficult for the children, when the fault lies within faulty teaching rather than in the skill.

It seems necessary, therefore, to amend the hypothesis in saying that major emphasis for some skills should be postponed to later grades. For some children this should also be applied to selecting main ideas. For all children major emphasis on graph reading should be postponed to a higher grade.

Summary

It is concluded that major emphasis on graph reading should be postponed to a later grade. For some children, selecting the main idea should possibly be postponed. It is concluded that judgment should be suspended until further experimentation on where four skills have been

executed. These skills are identifying assumption, identifying statements that play on emotional bias, identifying appeal to authority and suspension of judgment.

Summary

This chapter has dealt with some attitudes and conditions that are necessary to effective study. The conditions and attitudes are (1) democratic procedure, (2) interest and vigorous application of the mind, (3) critical regard for authors, books, and self, (4) teachers having the proper criteria for evaluating classroom procedure, (5) good physical classroom conditions, (6) suspension of judgment, (7) effective use of time. The conditions and behavior, consistent with democratic values are: the child must feel free to ask thoughtful questions; he must regard cooperative thinking as a means to evaluate his own thinking; he must learn to amend his ideas after due consideration of other's ideas; he must show consideration for others by using judgment as to when to engage in physical activity; problems should grow out of the child's needs; the child's personality should be preserved and developed.

Materials and evidence have been presented to show that these things are true. Materials and evidence are drawn from related studies, parents' comments, and the teacher's diary and observation. Two brief case studies were presented.

Evidence has been presented to show that all children will make progress, but not at the same speed or amount and that some skills

should probably not have major emphasis until later grades. Because of limitations in training and experience of the teacher, some reservations related to grade placement have been made.

CHAPTER VI

CONCLUSIONS AND IMPLICATIONS

Introduction

The purpose of this study was to develop and evaluate a variety of methods for teaching study skills in the social studies with a fourth grade group. The writer has attempted to evaluate the hypotheses set forth in Chapter I. An attempt was made to verify these hypotheses with evidence drawn from personal observation, diary records, anecdotal records, standard tests, comments from parents, both voluntary and in answer to a questionnaire, and other related studies and books.

Limitations of This Study

There are many limitations placed upon this study. The most outstanding is the narrow scope of administration. Experimentation was done with only thirty-one children who were atypical from the standpoint of home background, average social level and development, and the entire group had a stable economic status. Some conclusions formulated from this study could not possibly be applied to other groups, who did not enjoy the same advantages with which these children were surrounded. The conclusions that fit into this category are those that are related to the quality of work which should be expected. Possibly emphasis for grade placement is among these also. The chief conclusions, those related to teaching methods, should probably be valid for any group.

The fact that the teaching methods tested were evaluated on a noncomparative basis constitutes somewhat of an unresolved problem. Because there are so many skills for which there are no adequate tests, a comparison of a group which had received instruction emphasizing skills, could not be made with one which had had little or no emphasis on skills.

Standard tests were found somewhat inadequate because of the differences in the purposes of the test authors and those of the writer. These tests were also inadequate in the fact that they covered such a limited number of skills and too wide a grade range. No tests at all were found concerning attitudes at this grade level. Therefore, much of the material presented as proof was of necessity the opinion of the writer. An effort was made to keep an unbiased outlook. Nevertheless, because of the frailty of the human emotions some bias is unavoidable. It is hardly possible to work at a study for a year with vigor and interest without developing a personal bias.

A school year is a short time in which to conduct a study which is as important as this one. This period was then abbreviated to approximately six months, due to the time which elapsed before the first tests were given, and to the teacher's absence. The last tests were administered approximately three weeks before school closed. The teacher's absence was in parts of November and December and in January and part of February. This middle part of the school year is generally considered as the time when teaching is most effective, due to the fact that teachers have had time to get acquainted with their pupils and pre-vacation excitement has not yet begun.

The writer's lack of training and experience in teaching for certain skills is a decided hindrance in evaluating methods used to teach those skills. Where a weakness may appear to be in the method, it may well be in the teacher. Applied by a more skillful person the method might be entirely adequate.

This study then has undergone many handicaps which have affected its validity.

Hypotheses for This Study

Many of the hypotheses of this study have subhypotheses and these in turn have lesser hypotheses. The major hypotheses will here be given. For the subhypotheses and the more detailed aspects of these, see pages 34-41.

A. Specific teaching for study skills will result in improvement in the use of these skills.

B. Testing those skills that can be adequately tested will reveal strengths and weaknesses in teaching.

C. Study skills can be developed as wholes, rather than in isolated parts, used in the normal development of class procedure rather than in artificial situations.

D. Problem solving techniques will facilitate the acquisition of study skills.

E. There are some study skills that are common to social studies and other subjects.

F. Methods for teaching study skills which are better than some others are concerned with understanding printed materials, defining the problem, hypothecation, collecting data, evaluating data, organizing data, drawing conclusions, verification, and social expression.

G. Some specific attitudes and conditions are necessary for maximum development of desirable study skills. These conditions are relaxed atmosphere, democratic procedure, good physical classroom conditions, effective use of study time and adequate criteria for evaluating classroom procedure. The attitudes which are necessary are willingness to suspend judgment, regarding subject matter as a means to an end, regarding all authors as subject to bias and error, willingness or ability to work independently with vigorous and sustained application of the mind, and recognition of the dignity and worth of the individual.

H. All children will not develop study skills at the same speed or to the same extent.

I. All children will show some progress in some skills.

J. The teaching of some skills should be postponed to higher grades due to the lack of need for those skills in the fourth grade and to the immaturity of children at that age level.

Conclusions

All conclusions and implications of this study are colored by the limitations described above.

The writer concludes:

1. Study skills in the social studies, as defined in Chapter I, are the concern of the fourth grade teacher. However, the range of these skills is too wide to attempt in one study to adequately evaluate methods for teaching all the skills. Further research needs to be done. Evidence to support this conclusion is this manuscript itself.

2. Specific teaching for study skills will result in improvement in the use of these skills. Evidence presented to support this conclusion are observation by the teacher of children actually using these skills, summary of questionnaires sent to parents (see pages 67-70), summary of children's responses to questionnaire (see Appendix D), results of standard tests (see pages 63 and 66), review of children's folders, anecdotal records, and check lists. The Steck test showed an average gain of eighteen points. The Iowa test showed an average gain of six months, and My Weekly Reader test showed an average gain of eight months. Parents' and children's questionnaire summaries were overwhelmingly in favor of gain.

3. Testing those skills, for which there are adequate tests, will reveal, to a limited extent, strengths and weaknesses of teaching. The hypothesis from which this conclusion was taken did not include the clause, "to a limited extent." The amendment was made because it was found that in two of the tests the test author's purposes varied somewhat from those of the writer. It was found that the Iowa subtests were unreliable, the grade range of the Steck test was too great, and progress in individual skills could not be determined. The standard

tests used were Steck Test of Study Skills, Iowa Every-Pupil Work-Study Skills Test, and My Weekly Reader Diagnostic Reading Test.

4. Study skills can be developed as wholes, rather than in isolated parts, used in the normal development of class procedure rather than in artificial situations.

Pages from the teacher's diary and excerpts from related printed material have been presented to show that functional use of skills was intricately connected with purpose. One example has been given of how skills of alphabetization, use of dictionary, use of index, and use of reference were all utilized in writing a report. Chapter V has shown how attitudes defined in Chapter I functioned in not only this activity but many others.

5. Teaching problem solving techniques will facilitate the acquisition of study skills.

Material from the teacher's diary and excerpts from related printed material furnished the basis of this conclusion. The study of Knoxville was used as illustration of how problem solving techniques required the use of study skills. It requires critical thinking and power of organization to define and solve a problem. Use of external skills is necessary to select and organize material. In giving a report and resolving a problem both written and oral social expression are required.

6. There are some study skills that are common to social studies and other subjects.

One related study, a page from the teacher's diary, and several anecdotal records substantiated this conclusion. It was shown how problem solving techniques, use of book cues, selecting the main idea, and critical thinking can be utilized in science units as well as in social studies units. The bee frieze (see pages 105-107) was used as an example and several illustrations of children application of critical thinking to the problem were given.

7. Some methods of teaching are better than others. These methods concerned with improving skill in (a) understanding printed materials, (b) defining the problem, (c) hypotheation, (d) collecting data, (e) evaluating data, (f) organizing data, (g) drawing conclusions, (h) verification, (i) and social expression seem best for teaching critical thinking.

Evidence presented to support this conclusion are drawn from standard tests, observation, review of children's work, and teacher's diary, and related material.

The writer has presented illustrations of students picture lecture, giving captions to pictures on bulletin board, use of movies, pupil made line and bar graphs, pupil made maps---relief, line, products, and illustrated, vocabulary study selected from text and reference reading, selection of important ideas from text, and use of My Weekly Reader in learning skills of word attack, vocabulary study, and newspaper reading. These are key evidence to support the conclusion related to understanding printed materials.

Evidence has been presented to support the conclusion related to defining the problem, illustrations of classroom discussion as means of determining the author's purpose, and defining the problem for large units. Children's reports have been presented to illustrate how questions, formulated before reference work is done and before reports are written, determine the main body of information given. (See Appendices G, P, and DD.)

Samples of children's work--both individual and group--have been presented as key evidence to support the conclusion related to hypothe-
cation. (See Appendices O, S, and W.)

Children's work, teacher made tests and guides, anecdotal records, and diary records of class discussions have been presented to illustrate how skill in collecting data is increased by use of news items, book cues, reference work, field trips, interviews, deductive, inductive, and cooperative thinking. (See Appendices G, K, L, R, and V.)

Evidence to support the conclusion related to evaluating data is anecdotal records, notes from diary records, an account of material incorporated in peep shows, illustrated maps, and copies of children's work, and a rating sheet. (See Appendices B and X.)

Evidence to support the conclusion regarding organizing data has been presented in descriptions of class planning for a frieze, comparing countries, outlining and hypothecation. Bulletin board displays, graph and map making, science table displays, and individual booklets were described. Children's work--committee quiz questions, summary,

committee reports, check lists, and teacher made study aids are presented in Appendices G, P, Z, AA, BB, and CC.

Key evidence presented to support the conclusion concerning drawing conclusions is a description of class discussion involving inductive reasoning, and both class and individual summaries presented in Appendices G and P.

Classroom discussions are presented as evidence to support the conclusion concerning verification.

Descriptions of class discussion and planning, maps, graphs, drawings, peep shows, table scenes, taken from her diary, and pupil reports presented in Appendices G, P, and DD have been presented as evidence to support the conclusion regarding social expression.

8. Some specific attitudes and conditions are necessary for the maximum development of desirable study skills. Some of these conditions are relaxed atmosphere, democratic procedure, good physical classroom conditions, effective use of study time, and adequate criteria for classroom evaluation. Some of these attitudes are interest and vigorous application of the mind to the problem, regarding author as subject to error and bias, suspension of judgment, and critical regard of books, others and self.

Evidence presented to support this conclusion are accounts of personal observation, classroom procedures, two case studies, parents' comments, parent report card, anecdotal records, and related books.

Key evidence presented to support the conclusion concerning democratic procedure and relaxed atmosphere are two case studies (see

pages 177-186) showing how personalities were preserved and developed, accounts from diary records describing situations showing how experience grew out of the children's needs, how children were encouraged to ask thoughtful questions and direct their own activities, and how work was adjusted to individual abilities.

A score card was presented to show how proper use of study time was encouraged (see Appendix B).

Excerpts from related books were presented to verify the conclusion regarding criteria for classroom evaluation.

An account of personal observation is presented to support the conclusion concerning good physical classroom conditions.

Evidence supporting the conclusion related to specific attitudes necessary for maximum development of study skills are accounts from the teacher's diary.

9. All children will not develop study skills at the same speed or to the same extent.

Key evidence presented to support this conclusion are results of standard tests. (See Table III, page 63, and Table IV, page 66.) The Steck test shows a range of gain of eighteen points. The Iowa test shows a range of gain of six months. My Weekly Reader test shows a range of gain of eight months.

10. All children will show some progress in some skills.

Key evidence to support this conclusion are results of standard tests (see Table III, page 63, and Table IV, page 66), personal observation, and accounts from the teacher's diary.

11. Major emphasis on some skills should be postponed to higher grades. For some children selecting the main idea is one of these skills. For all children graph reading is one. Propaganda analysis may possibly be one.

Evidence presented to substantiate this hypothesis are accounts from diary record of children's reaction to certain skills training.

Implications of This Study

The aforesaid conclusions have been reached through consideration of related studies (which are indeed meager in number) and books and from this one study.

1. Therefore this study implies for other fourth grade teachers and for the writer;

A. Much more research as to content needs to be done to determine (1) what skills and attitudes should receive major emphasis at this grade level, (2) what progress can reasonably be expected of the so-called "average" fourth grade child.

B. Much more research as to method needs to be done to determine (1) what methods should be used to help children make the transition from primary to intermediate level easier, (2) what further methods can be developed to better care for individual differences in ability to carry on the "higher thought processes," (3) methods for teaching various phases of propaganda analysis, (4) methods for recognizing situations where these skills (propaganda analysis) will function naturally at this grade level.

Other implications of this study concerning methods are:

(1) Problem solving techniques imply the need of a different kind of procedure from that used in many schools--democratic procedure.

(2) Democratic procedure implies that teachers be aware of the kind of behavior to expect--that which is consistent with democratic values:

- (a) social adjustment
- (b) cooperation
- (c) participation
- (d) self direction
- (e) responsibility
- (f) open-mindedness
- (g) creativeness
- (h) concern for others
- (i) group action¹

(3) A more closely integrated program is implied so that training for transfer of problem solving techniques and critical thinking may be effective.

C. Better materials for teaching social studies study skills at this level need to be developed:

(1) A wider range of material is needed to take care of individual differences, (a) more books that present functional information on a wide range of ability levels, (b) books that are better organized with study processes in mind, (c) exercises and activities graded as to difficulty for teaching the various skills. These exercises should not be used indiscriminately but as a guide to suggest further exercises, (d) more books that incorporate democratic values in their content.

¹Michaelis, John U., Social Studies for Children in a Democracy (New York: Prentice Hall, Inc., 1950), pp. 37-42.

(2) More and better functional material should be developed such as maps, visual aids, particularly film strips and movies, pictures and charts.

(3) Better and more comprehensive tests and measurements for study skills need to be constructed so that teachers can evaluate growth reliably for each separate skill. If a teacher's purposes differ from that of the test writer, some provision should be made to allow for that. Adequately constructed subtests would probably do this. There are no attitude scales for this level. Some need to be developed for those attitudes that are necessary for maximum development of study skills.

2. Findings of this study have certain implications for elementary social studies teachers. These implications are:

A. Since power to study is slow in maturing, a readiness program for study skills in the social studies, should be established throughout the entire elementary grades. Teachers should be aware of what study skills are and recognize the various levels of maturity in each skill. Continuity of experience should be planned.

B. Research at other grade levels needs to be done as to (1) major emphasis, and (2) minimum requirements.

C. Parents' interest and cooperation at this grade level imply that some parents are aware of the benefits of a study skills program and will doubtless expect a continuity of these experiences in other grades and will be willing to help there too.

D. Research needs be done to determine better methods for teaching the "higher thought processes" and external skills appropriate to each grade level.

E. Problem solving techniques and democratic procedures are appropriate for this grade level for teaching study skills. Therefore, it implies they will also be appropriate for other grade levels and the same behavior traits on a more mature or less mature level (depending on the grade level) should be expected.

F. Problem solving techniques and critical thinking are applicable to other subject matter. Therefore, if teachers will teach for transfer and integration the entire level of learning will be raised for each grade level.

G. That the fourth grade needs better materials, a wider range and more functional, better and more comprehensive tests and measurements for skills and attitudes, implies that lower grades also need these on each individual level and that upper grades would also profit to some extent by these.

3. The findings of this study have certain implications for the general education program.

A. Teacher training programs need to be redefined:

(1) Future teachers need to analyze the various aspects of critical thinking.

(2) They need to be given guidance so that they recognize varying degrees of maturity in critical thinking and other study skills.

(3) Emphasis should be placed on study skills not only in

social studies but in other subject matter fields. Methods courses should center around this implication.

(4) Classes in Test and Measurements and Evaluation should give ample attention to study skills.

(5) Democratic procedures and problem solving techniques should be analyzed as they apply to all subjects so that teacher's may plan for continuity of experience.

(6) Pitfalls and difficulties teachers will encounter need be pointed out and suggestions for modifying the program need emphasis. This is important.

B. This study has been made, limited as far as the specific group is concerned, primarily by a short testing period and the lack of training and experience on the part of the teacher in teaching specifically for study skills in the social studies. It is concluded that the class has made excellent progress both in use of study skills and in behavior consistent with democratic values. Evidence has been given to support this conclusion. This last implication will be valid to the extent that this evidence is valid. If this group of children can progress in use of skills and appropriate behavior, through specific teaching for study skills, all grades can make progress appropriate to each grade level. This progress will be to a greater or lesser degree depending on the limitations of each group which in turn affects the quality of democratic citizenship our school will produce.

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APPENDIX

APPENDIX A

HEALTH

May 22, 1953

Doctor - Sam

	Monday	Tuesday	Wednesday	Thursday	Friday
Dan	Hc	a	a	a	Hc
Joe	a	a	a	Hc	a
Dillard	a	a	a	a	a
Sam	a	N	a	a	a
Ben	a	a	a	a	a
Robert	a	a	a	a	a
Barton	ab	ab	HcH	a	Hc
James	a	a	a	a	a
Gene	a	a	a	Hc	a
Boyd	a	a	a	a	a
Reece	a	a	Hc	a	a
J. D.	N	N	N	N	N
Ladd	a	a	a	a	a
B. W.	a	a	a	a	He
J. C.	a	a	a	a	a
J. T.	ab	a	a	a	a

H - Hands

Hc - Hanky

T - Teeth

N - Nails

ab - Absent

APPENDIX B

SCORE CARD OF STUDY HABITS

This sheet is worked out, not on the basis of perfection but on what can reasonably be expected of a child in the fourth grade.

Key: 1 most of the time 2 some of the time 3 occasionally
 4 never + improving over last report

Please put your signature on the back of this sheet.

Takes directions

1.	orally	2	1	1
2.	written	2	2	1
3.	Goes to work promptly	3	2	1
4.	Works vigorously till finished	3	2	1
5.	Does not let talk interfere with work	3	2	2
6.	Does not day dream	1	1	1
7.	Only asks for help when can't help himself	2	2	2
8.	Contributes to class discussion	2	2	1
9.	Gives reasonable attention in class	2	1	1
10.	Asks intelligent questions (not for added directions)	2	2	2
11.	Greatest weakness is	No. 3 & 4	No. 7	
		Nov.	Jan.	Mar.
				May

APPENDIX C

Report to Parents

Dear Parents,

Below you will find the results of standardized tests that have been given this year. The result is not entirely accurate as many things enter into the work a child does from day to day. However in most cases the score is an indication of the progress a child has made.

Reading test put out by My Weekly Reader (is pretty rigid)

(Sept) Highest score of first test _____

(April) Highest score of second test _____

Your child's score on the first test _____

Your child's score on the second test _____

Study Skills Test (Steck Co.)

No norms given. Possible score 102

Test written for Grades 4 through 9

Highest score on test given in Oct. _____

Lowest score on test given in Oct. _____

Highest score on test given in May _____

Lowest score on test given in May _____

Your child's score on Oct. test _____

Your child's score on May test _____

Iowa Study Skills Test--Grades 3, 4, 5.

Highest total score on Oct. test _____

Lowest total score on Oct. test _____

Your child's total score _____

Map Reading _____

Use of Reference _____

Use of Index _____

Use of Dictionary _____

Alphabetization _____

Highest total score for May test _____

Lowest total score for May test _____

Your child's total score _____

Map Reading _____

Use of Reference _____

Use of Dictionary _____

Use of Index _____

Alphabetization _____

APPENDIX D

QUESTIONS ASKED CLASS AND
SUMMARY OF ANSWERS

1. Do you think making a relief map really helps you understand?
 - 1 not me but does others
 - 29 yes
2. Does a vocabulary list make a unit more interesting?
 - 30 yes
3. Do you think you learn more from a pupil made map or a bought one?
 - 1 same
 - 2 bought
 - 26 pupil made
 - 1 answer not clear
4. Do you learn from a frieze or is it just interesting?
 - 3 both
 - 3 interesting
 - 24 learn
5. Do you enjoy units where you do hand work better than those that you do no hand work?
 - 1 not clear
 - 1 no
 - 28 hand work
6. You ~~learn~~ ^{like} units better when I guess your questions or where you hunt for the main idea?
 - 1 no answer
 - 7 answer not clear
 - 6 main idea
 - 16 questions
7. Does indexing your notebook "food, clothing, shelter," help you learn?
 - 1 no answer
 - 2 no
 - 27 yes
8. Do you really learn from the opaque projector or is it just interesting?
 - 2 no answer
 - 4 both
 - 5 interesting
 - 19 yes

APPENDIX E

PARENTS' QUESTIONNAIRE

Dear Parents,

Again I would like to express my sincere appreciation for your fine cooperation. I can truly say that I have never had a group of parents who were more interested in their children's progress or more cooperative with the teacher's efforts.

Please, at your earliest convenience fill out this questionnaire and return to me. It is one means of evaluating my work of the year. Please no "apple sauce." Constructive criticism gives both the good and the bad. No teacher can reach all the children one hundred percent, so I don't expect to find that I did. I know I didn't. If you would like to comment or elaborate on your "yes or no" answer on any or all items, please number them on the back of this paper. Specific instances cited help me.

1. Do you feel that your child has adjusted to the group and to me and been happy most of the year?
2. Has your child given you evidence of interest in his work, that you feel might be the result of methods used in this classroom?
3. Has he seemed to progress in his ability to concentrate on his work?
4. Has he given evidence of knowing how to go about studying?
5. Has he been more prompt about getting to his school work without prodding from you? (Where no home work has been done some of you will not be able to answer this.)
6. Does his work habits seem to slip over in other fields of endeavor such as piano practice, taking responsibility about the home in tasks set for him?
7. Do you think the assignments I usually make are too hard or "over your child's head" completely?
8. Is there any special method used in this classroom that you dislike or disapprove of?
9. Is there any special thing we do that you particularly like or are interested in?
10. Do you feel that work skills and habits acquired in this room will help your child in the future even if some are not given much attention by future teachers?

APPENDIX F

March 25, 1953 - Dictionary Drill

shaft 564 shape
shapeless 565 sheath
sheath 566 shell
shellac 567 shingle
shingle 568 shock
shock 569 short
shortage 570 show

From these guide words find the page number for the words below:

1. shire - 568
2. shone - 569
3. shaker - 564
4. shears - 565
5. skines - 567
6. shirt - 568
7. sheba - 566
8. shook - 569
9. ship - 568
10. shaving - 565

APPENDIX G

April 13, 1953

My Report on
India's Transportation

Molly

This report will try to answer these questions.

1. What transportation does India have?
2. Does climate and location effect transportation in India, if so how?

Report

You wouldn't think India had so many means of transportation as it does, would you?

Of course if India sits on the Bay of Bengal and the Arabian Sea and many other little rivers and streams, there would naturally be boats, ships, and steamers.

They have cities just as we do, so they have automobiles, rickshaws, bicycles, bullock carts, palanquins, howdahs, sedan chairs, oxcarts, camels pulling carriages, donkeys, ponies, and the most imposing animal of all is the elephant.

"Dhoolies are square boxes, rather like sedan chairs, in which native ladies sometimes travel, and the rath is a palanquin on wheels." (1)

They also have airplanes to carry passengers on.

In some parts of India you will find railroads, which mean that they have trains.

I guess you know that India has some desert land which means that the camel comes in handy again.

There are also some camel caravans. "Camels are ridden by both men and women in India."

APPENDIX G (Continued)

"Farmers use bullocks as "trucks" to carry crops to city markets."(2)

"Bullock carts with wooden wheels are seen everywhere."(3)

90 people out of 100 ride bullock carts on dusty roads.

"In Ajmere the bullock carts have awnings supported by 4 poles, and in Calcutta there are elaborately decorated carriages."(4)

Other means of transportation are by hackeries, ekkas, and raiklas, the yak is used up in the Himalayas.

Summary

India's transportation is walking, boats, automobiles, rickshaws, bicycles, bullock carts, palanquins, howdaks, sedan chairs, oxcarts, camels, donkeys, ponies, elephants, dhoolies, raths, hackries, ekkas, raiklas, yaks, airplanes, and trains.

Climate and location does effect transportation in India, it makes it so that on desert land the camels and camel caravans are used, and in the city the automobile etc. are used.

Footnotes

1. Travel Book of Transportation p.p. 39
2. Travel Book of Transportation p.p. 39
3. India p.p. 16
4. India p.p. 25
5. Travel Book of Transportation p.p. 35

APPENDIX G (Continued)

Book list

1. Text.
2. Travel Book of Transportation.
- Book 2 3. How the Present came from the Past.
4. A Childs Geography of the World.
5. India.

APPENDIX H

GEOGRAPHY

PURPOSE OF STUDY

We study Geography to learn how people around the world provide themselves with food, clothing and shelter. We learn how climate affects these three things, transportation, communication, occupation and man himself. Also through understanding these things we learn to understand other people who live differently from us, and see how all people depend upon each other.

PURPOSE OF STUDY OF KNOXVILLE

We want to find out how people in Knoxville provide themselves with food, clothing and shelter. We want to find out what effect Knoxville's location and climate has on occupation, transportation, communication, recreation, food, clothing, and shelter.

APPENDIX I

COMMITTEE GUIDE QUESTIONS

SHELTER COMMITTEE must answer these questions:

1. How does climate and location effect shelter in Knoxville?
2. Where does the materials our homes are made of come from?

FOOD COMMITTEE must answer these questions:

1. How does location and climate affect our food?
2. Where does our food come from?

CLOTHING COMMITTEE must answer these questions:

1. How does climate and location affect our clothes?
2. Where do our clothes come from?

OCCUPATION COMMITTEE must answer these questions:

1. At what kind of occupations do people in Knoxville work?
2. How does climate and location affect occupations?

COMMUNICATION AND TRANSPORTATION COMMITTEE must answer these questions:

1. What transportation does Knoxville have?
2. What communication does Knoxville have?
3. Does climate and location affect these and if so how does it affect them?

RECREATION COMMITTEE must answer these questions:

1. What kind of recreation does Knoxville have?
2. How does climate and location affect recreation?
3. What has recreation to do with man?

APPENDIX J

Picture Captions

1. Mahaja, Mahout and Elephant
2. Zebu Grinding Sugar Cane
3. The Street of Copper Ware
4. Temple Dancer
5. Harvesting Jute
6. Zebu at Work
7. India--Old and New
8. Ganges Delta

APPENDIX K

Ap. 8. Test on Film on India

1. What is another name for the Ganges?
2. What were the 2 foods eaten in the film?
3. What were the 3 crops mentioned?
4. How many people in India are farmers?
5. Where was the scene of the picture laid?
6. Of what was the house built?
7. How were crops watered?
8. What are ghats?
9. How many people out of 100 are educated?
10. How big is India?

APPENDIX L

Graph Test Sample
(teacher made)

1. On what day was the temperature highest?
2. On what day was it the lowest?
3. On what day was it next highest?
4. On what day was it next lowest?
5. On what day of the month was the temperature 60°?
6. On what day of the month was it 52°?
7. On what week did the class make the most perfect scores?
8. On what week did they make the least perfect scores?
9. What was the smallest number of perfect scores?
10. What was the greatest number of perfect scores?

Questions 1-6 were derived from a temperature graph.

Questions 7-10 were derived from a spelling graph. This graph was made to record perfect scores for each Friday spelling test.

APPENDIX M

Vocabulary for Egypt

1. Bedouin - a tribe of nomads
2. desert - big sandy dry piece of land
3. oasis - a spot in a desert where there is water
4. delta - fan shaped
5. irrigation - watering land by a series of ditches
6. canal - ditch
7. norag - seed like machine used for threshing
8. shaduf - a machine used for watering the field
9. sickle - a curved knife used for cutting
10. dune - a hill of sand that blows from one place to another
11. tomb - a place to bury the dead
12. pyramid - a tomb for Egyptians' kings
13. Sphinx - a huge statue guards one of the pyramids or tombs
14. mummy - a body preserved in a special way
15. Aswan - a dam in the Nile
16. cuneiform - an early form of writing
17. archeologist - a person who studies old remains
18. Giza - a place in Egypt where the pyramids are
19. Pharaoh - a name for the ancient kings of Egypt
20. Papyrus - a plant from which paper was made
21. fertile - rich soil

APPENDIX N

India Vocabulary Test

Give definitions in your own words of the words below.

1. Benares
2. Karachi
3. Hindu
4. Himalaya
5. Ganges
6. Gandhi
7. Nehru
8. dekki
9. winnowing
10. Mt. Everest
11. zebu
12. Maharaja
13. New Delhi
14. Agera
15. Indus
16. Bengal
17. Calcutta
18. relief map
19. sari
20. ghaut

APPENDIX O

Big Guesses about India

We will keep these things in mind as we study from day to day and see if our guesses are right.

1. Climate--hot and wet
2. People's looks--dark skin
dark eyes
dark hair
3. Clothing--turbans
sandals
cotton clothes
light clothes
4. Shelter--slanted roofs
wood
stones
bamboo
matting
5. Food--raise rice--wheat--tea--highly spiced foods
6. Transportation--elephants
camels
boats
oxen
horses
7. Religion--Hindus
Fire worshipers
Christians
Moslems

APPENDIX P

May 1, 1953

Freda

Report on China's Food

1. What are their foods?
2. What effect does climate and location have on China's food?
3. How do the people in China provide themselves with food?
4. Do they buy or raise their food?

Report

The most important food in China is rice. Not all people eat rice. Many Chinese children have never tasted milk. Tea is their main drink.

Chinese feasts have as many as 30 courses. Meals like this are served in eating houses or homes. When the meal is over the people tell the cook if the meal is good or bad. If it is good he will have more business.

Chinese people have strange food. They have snails, seaweed, octopus feelers, sea slugs, bird nest soup, shark fins, weeds, or watermelon seeds.

The most used seasonings are garlic, onions, gingerroot, soy sauce, vinegar, brown sugar, salt, red pepper, and herbs.

In other parts of China they have boiled rice, chicken, fish, pork, noddles, tea and vegetables. They also eat dried fish, sugar cane, sweet potatoes, bananas, pineapples, and soy beans.

People in Tibet drink buttered tea. They drink 30 or 40 cups a day. They make tea and put butter in it and it is churned into thick tea.

Chinese people use bowls to eat in. They eat with sticks 10 inches long called chopsticks.

Chinese people drink tea instead of water. They have to boil water to make it clean so they put tea in it to taste good.

Meat shops in China sell horse, donkey, camel, and water buffalo meat. When floods come, they eat cats, dogs, rats, mice, and mud.

The most common foods raised are rice, tea, barley, wheat and vegetables.

In southern China they eat rice, beans, greens, and vegetables oil. In northern China they eat little rice. They eat barley, wheat, sweet potatoes are grown for food.

Summary

China's foods are barley, wheat, vegetables, vegetable oil, sweet potatoes, seasonings, meat, fish, sugar, candy, nuts, fruit, mud, strange foods and the most important, rice and tea. The climate is mild, warm and wet so they can grow our foods and some of India's. Their location is near India so they can grow India's foods and in the middle of China the climate is mild to grow our food. They raise and buy their food they provide themselves with it. They buy and raise their food.

Book List

1. Let's Read About China
2. What the World Eats
3. Our Neighbors Near and Far
4. Home Life in Far Away Lands
5. Picture Map Geography of China
6. China

APPENDIX Q

March 16

Julia

Geography

Study Skills

1. I read the bold face letters.
2. Next I looked for the words in italics.
3. Then I read under the pictures.
4. Then I read over the lesson quickly.
5. Then I read all the way through.
6. I looked at the maps.

Questions I used.

1. Why don't the Egyptians have more space for farming?
2. Why can the Egyptians raise cotton and other things when the land is dry?
3. What is a delta?
4. Why do they call the Nile, Father Nile?
5. Why do they argue over what they buy?
6. What do they eat most of the time?

APPENDIX R

A Test on the Film How to Read a Book

To know if a book is reliable we look for the _____,
_____, and _____.

We find the author's purpose in the _____. Also
we find the scope of the work.

We find certain topics in the _____ and _____
_____ of a book.

To find if a book has the material you need first you look in the
_____ and _____. Then you
read _____.

When you find what you want you read _____.

APPENDIX S

May 1, 1953

Ladd

Hypotheses Related to
the Great Wall of China
Geography

It is made out of stone and earth.

It runs all over China.

It is real wide.

It was built about two thousand years ago.

It was used to keep the mean tribes to the north out.

It has towers about every hundred yards.

APPENDIX T

April 17, 1953

Geroldine

Writing a Report

Title

Questions

Body of Information

Summary

With footnotes

Footnotes

Book List

1. Begin work early.
2. Read everything you can find on the subject.
3. Keep notes.
4. Be sure you have good big questions.
5. Do not use words you cannot understand and pronounce.
6. Never copy anything you do not understand.
7. Never copy from a book unless you enclose it in quotation marks and put the book and page numbers in the footnotes.
8. Make your report as interesting as possible.
9. Try to put things in your report you think no one will already know.
10. Read your report to someone in your family and see if they understand what you have written.
11. Go over every one of these items one by one and be sure you have done each one with your report.

APPENDIX U

Ladd
Mar. 9, 1953

Questions to Ask Mr. Kamel

1. Do they have big highways?
2. Do they worship like we do?
3. If they have schools? Are they like ours?

APPENDIX V

Mar. 10

Joe

Mr. Kamel's Visit

These are the things I learned when Mr. Kamel visited us. I learned that many of the Egyptian people are named for people of the Bible. Also that many of the babies born this year will be named for the new ruler of Egypt.

I found that Egypt is farther along than I thought. For example I had no idea that they hired people to design or make their houses. Nor did I know that trains were so common. I knew that they had schools, but I didn't think there were near as many. I was also surprised when he said there were so many trains. Neither did I know there were so many buses.

It surprised me to know that there were almost as many white collar workers as farmers. For I thought that farming was the main occupation by far. I also thought that all the people wore robes, and not pants, shirts, and dresses.

APPENDIX W

(Hypotheses arrived at Through Logical Deductions)

May 1, 1953

Geography

Geroldine

Big Guesses About China's Religions

1. They have Priests.
2. They have temples.
3. Idols in places of worship.
4. Maybe some are Christians.
5. They have some religions like ours.
6. They don't believe in our God.

APPENDIX X

Joe and Barbara

Review Questions

1. How long is the cold season?

3 months

2. In what Hemisphere is China?

East and West

3. What is the longest river in China?

The Yonatzu

4. What is the climate of China?

Mild and wet.

5. What effect does climate and location have on "food, clothing, shelter, occupation"?

Makes it so they have it the way it is.

APPENDIX Y

Summary for Knoxville Study

SHELTER

The materials our homes are made of come from states round about and some of it comes from Knoxville. Our climate is mild. So we have our houses built so we can be cool in summer and warm in winter. Ours need not be built as well as those farther north, but they need to be built better than those south of us.

FOOD

Our food comes from far away places and some of it comes from right here. We do not have the right kind of climate for all foods. Therefore we have to ship in many foods.

CLOTHES

Our climate makes us very uncomfortable if we wear clothes heavy as those up north or as light as those in the south. In summer we wear cool clothes and warm clothes in winter. Our clothes come from far and near.

OCCUPATIONS

People in Knoxville work at occupations that provide food, clothing, and shelter, also at T.V.A., at transportation, communication, recreation, and many other things.

The location of Knoxville makes it possible to work at T.V.A. The climate and location make it possible for us to have the kind of transportation and communication we have.

APPENDIX Y (Continued)

TRANSPORTATION AND COMMUNICATION

Our transportation is boats, cars, buses, trucks, airplanes, trains, and feet.

We use telephones, talking, mail by planes, buses and trains, telegraph, radio, newspaper, magazines, television and movies.

Our location makes it possible to have all the means of transportation and communication that we have.

SUMMARY

How do people in Knoxville provide themselves with food, clothing, and shelter and all their other wants and needs.

They earn their money and pay for food, clothing, and shelter and their wants and needs. They share their work and products.

APPENDIX 2

Study Aid

Use one page in your notebook to put each of the headings below.

When you find a fact in your book or in any book you are reading put it under the right heading.

1. Food
2. Clothing
3. Shelter
4. Transportation
5. Climate & Location
6. Religion
7. Occupation

APPENDIX AA

Mar. 25

Ernestine

Geography

India

1. Food

thick soup with peas & beans
vegetables
fish
spices
papayas
mangoes Banana rice red pepper

2. Clothing

cotton clothes they wash

3. Shelter

five huts
two for bedrooms
one for the kitchen
one for store house
one for dining room

4. Location & Climate

Near the hot belt
hot and wet

5. People's looks

Brown skin
Brown hair
dark eyes

6. Transportation

boats

7. Occupation

farming

APPENDIX BB

GEOGRAPHY

REVIEW QUESTIONS FOR ALL COUNTRIES

1. How do people in _____ provide themselves with food?
2. What are their foods?
3. What effect does climate and location have on food?
4. How do people in _____ provide themselves with clothing?
5. What do their clothes look like?
6. What effect does climate and location have on clothes?
7. How do people in _____ provide themselves with shelter?
8. What effect does climate and location have on shelter?
9. What does their shelter look like and of what is it made?
10. What is the main occupation?
11. What kind of transportation and communications do they have?
12. What do the people in _____ look like?

APPENDIX CC

Check List of Class Reports

1. Sticks to subject
2. Works independently
3. Speaks clearly &
loud enough
4. Organizes material
5. Gathers outside
material
6. Follows good English
rules
7. Told or written in
interesting style

1st
report2nd
report3rd
report4th
report5th
report

APPENDIX DD

Joe

Transportation Report on China

In this report I will try to answer the following questions.

1. What kind of transportation do they have?
2. What effect does climate and location have on transportation?

My Report

China does not have much good transportation. Of course that makes it hard to get from place to place so they can't get with other people easily. Since they can't get with other people, each village gets its own dialect. Different dialects have a lot to do with China not catching up with modern means of transportation. Dialects are not the only reason China does not have modern means of transportation. The other reason is ancestor worship. Ancestor worship is worshipping people older than you because they worship old people that follow the best but only ways they know and their children follow those ways so there is the other reason that transportation is not better in China.

But like all countries we have studied, in big cities it is hard to tell you are not in New York for everything is so modern.

In China many boats are not used for transportation they are houses, house boat. But boats are used for transportation a lot. One thing China is known for is its canoes, Jinrikishas are one thing that

APPENDIX DD (Continued)

can be seen even in big cities. This two wheel coolie pulled cart is seen in most all China.

China is far behind in the world but is catching up fast.

Summary

1. Their transportation is mostly man driven carts with few machines.
2. Climate makes it so they are not in a sled peddled by dogs but things that suit them best.

Book List

1. The Story Book of Wheels
2. Peoples and Countries
3. People and Places
4. Peoples of Other Lands
5. Our Neighbors Near and Far
6. Text

APPENDIX EE

Food in Egypt

March 17.

Pan

My Question

1. What kind of food do they eat?
2. What kind of vegetables do they eat?
3. Where do they get their milk?

My Report

The people in Egypt eat a lot like ours. The people get some of their food from animals. Wheat, sugar cane, and onions are grown there. In certain places they grow oranges, peaches, olives, figs, grapes and dates, milk, vegetables, corn, rice, are plentiful. They harvest their crops three times a year.

No summary or book list was given.